

**State Route 1 Auxiliary Lanes and Bus-on-Shoulder
Improvements—Freedom Blvd. to State Park Dr.—and
Coastal Rail Trail Segment 12 Project with Finding of No
Significant Impact**

SANTA CRUZ COUNTY, CALIFORNIA

DISTRICT 5 – SCR – (8.1/10.7)

EA 05-0C734

**Final Environmental Impact Report/
Environmental Assessment**



**Prepared by the
State of California, Department of Transportation**

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans.

January 2024



General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this Environmental Impact Report/Environmental Assessment, which examines the potential environmental impacts of the alternatives being considered for the proposed project in Santa Cruz County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document explains why the project is being proposed, the alternatives being considered for the project, the existing environment that could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures. The following text has been added to the Final Environmental Document. The Draft Environmental Impact Report/Environmental Assessment was circulated to the public for review for 45 days between April 18, 2023, and June 2, 2023. Comments received during this period are included in Appendix L. Elsewhere in this document, changes made since circulation of the draft document are indicated and explained within the text. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document and the related technical studies are available for review at the Caltrans District Office at 50 Higuera Street in San Luis Obispo and at the County of Santa Cruz Public Works office (fourth floor) at 701 Ocean Street in Santa Cruz. This document may be downloaded at the following websites: <https://dot.ca.gov/caltrans-near-me/district-5> and the Santa Cruz County Regional Transportation Commission website: <https://sccrtc.org/projects/streets-highways/>.

Alternative formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Lara Bertaina, Central Region Environmental, 50 Higuera Street, San Luis Obispo, CA 93401; 805-779-0792 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY to Voice), 1 (800) 735-2922 (Voice to TTY), 1 (800) 855-3000 (Spanish TTY to Voice and Voice to TTY), 1-800-854-7784 (Spanish and English Speech-to-Speech) or 711.

Widen State Route 1 from post miles 8.1 to 10.7 in Santa Cruz County and Construct Coastal
Rail Trail Segment 12

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT
IMPACT**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation
and
Santa Cruz County Regional Transportation Commission
Responsible Agencies: California Transportation Commission, County of Santa Cruz



Scott Eades
District 5 Director
California Department of Transportation
NEPA and CEQA Lead Agency

01/17/2024

Date

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT

FOR

The State Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements-Freedom Blvd.
to State Park Dr.-and Coastal Rail Trail Segment 12 Project

The California Department of Transportation (Caltrans) has determined that the Build Alternative will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project, as well as appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment. The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated May 27, 2022 and executed by the Federal Highway Administration and Caltrans.



Scott Eades
District 5 Director
California Department of Transportation
NEPA and CEQA Lead Agency

01/17/2024

Date

Summary

S.1 NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with The Federal Highway Administration. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on May 27, 2022, for a term of ten years. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, The Federal Highway Administration assigned and the Department assumed all of the United States Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off the State Highway System within the State of California, except for certain categorical exclusions that The Federal Highway Administration assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

S.2 Introduction and Overview

The California Department of Transportation (Caltrans), in cooperation with the Santa Cruz County Regional Transportation Commission and the County of Santa Cruz, proposes to widen State Route 1 to include auxiliary lanes, accommodate Bus-on-Shoulder operations between the Freedom Boulevard and State Park Drive interchanges, and construct Coastal Rail Trail Segment 12.

One build alternative and the no-build alternative are proposed for further consideration. The project is located in Santa Cruz County on State Route 1 from post mile 8.1, south of Freedom Boulevard, to post mile 10.7, north of State Park Drive, with 1.14 miles of trail along the Santa Cruz County Regional Transportation Commission-owned Santa Cruz Branch Rail Line between State Park Drive and Rio Del Mar Boulevard. The total length of the project on State Route 1 is 2.6 miles, and on the Santa Cruz Branch Rail Line is 1.14 miles. Within the limits of the proposed project, State Route 1 is a controlled access freeway with two 12-foot lanes; shoulder width varies within project limits. The average width of the inside shoulders is approximately 5 feet, and the average width of the outside shoulders is approximately 10 feet. Within the project area, the existing railroad right-of-way is generally in the

range of 40 to 55 feet wide, with the existing railroad tracks generally in the center of the right-of-way. The existing railroad has at-grade crossings at State Park Drive, Aptos Creek Road, and Trout Gulch Road, with bridges over State Route 1 at two locations, Soquel Drive/Aptos Creek and Valencia Creek, and crosses under Rio Del Mar Boulevard. The Santa Cruz Branch Rail Line is currently an active freight railroad.

S.3 Purpose and Need

The purpose of the project is to do the following.

- Reduce delay and improve system reliability and safety along State Route 1.
- Improve traffic operational movements, local circulation, and transit operations.
- Enhance bicycle and pedestrian connectivity and safety, including access across State Route 1 within the project limits.
- Promote the use of alternative transportation modes to increase transportation system capacity and reliability, improve health and reduce mortality, as well as to reduce vehicle miles of travel and vehicular emissions.

This project is needed for the following reasons.

- Several bottlenecks along State Route 1 in the southbound and northbound directions cause delays during peak hours, significantly delaying drivers.
- Cut-through traffic, or traffic on local streets, is increasing because drivers are seeking to avoid delays on State Route 1.
- There are limited opportunities for pedestrians and bicyclists to safely cross State Route 1 and navigate the project corridor, even though portions of the project area are designated as regional bicycle routes.
- There are insufficient incentives to increase transit service in the State Route 1 corridor because delay threatens reliability and cost-effective transit service delivery.

S.4 Proposed Action

Text has been added to this section summarizing the final environmental document process. The project under consideration in this EIR/EA is a widening of State Route 1 between post mile 8.1 to post mile 10.7 in the County of Santa Cruz to include auxiliary lanes and to accommodate Bus-on-Shoulder operations between the Freedom Boulevard/State Park Drive interchanges, and to construct Segment 12 of the Coastal Rail Trail.

This EIR/EA analyzes a No-Build (No Action) Alternative and a Build Alternative. The proposed Build Alternative would involve the construction of 12-foot auxiliary lanes between the Freedom Boulevard/State Park Drive interchanges. Moosehead Drive to the south of State Route 1, south of Aptos Creek would be realigned where it runs parallel to State Route 1 and a new retaining wall would be placed along the outside freeway shoulder to support the realignment. The Build Alternative would include replacement of two Santa Cruz Branch Line railroad bridges over State Route 1 and widening of the State Route 1 bridge (on the south side only) over Aptos Creek and Spreckels Drive.

Bus-on-shoulder features are proposed, which would allow future bus operations on the outside shoulders of State Route 1 through the interchanges during peak congestion periods. At the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchanges, the project would widen and improve State Route 1 shoulders, which currently lack the width and pavement structural section to support bus operations.

The limits of Coastal Rail Trail Segment 12 extend from the southern terminus of the trail segment at Sumner Avenue, just of the south of the Rio Del Mar Boulevard underpass, to the northern terminus at State Park Drive. The proposed Coastal Rail Trail Segment 12 ultimate trail configuration includes the construction of a paved bicycle and pedestrian shared use trail within the Santa Cruz Branch Rail Line right-of-way on the inland side of the tracks. An optional first phase is being considered for Segment 12 of the Coastal Rail Trail, where all or a portion of the trail could be located along the alignment of the existing railroad tracks.

Under the ultimate trail configuration, new trail bridge crossings of State Route 1 at two locations and adjacent to the existing railroad bridges at Soquel Drive/Aptos Creek, and Valencia Creek would be constructed. New at-grade trail crossings would be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed. Under the optional first phase being considered, the two existing railroad bridges over State Route 1 would be removed and two new trail overcrossings over State Route 1 would be constructed in their place. The existing railroad bridges at Aptos Creek and Valencia Creek/Soquel Drive (south) would be repurposed for the new trail by removing the railroad decking and replacing with a new trail deck and railing system. The existing single span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.

If all or a portion of the optional first phase of the trail is implemented, the trail along the existing railroad track alignment would need to be removed, a trail would be constructed adjacent to the tracks as described by the proposed ultimate trail project, and the railroad tracks re-installed in their approximate

Summary

existing location. At-grade railroad crossings of Aptos Creek Drive, Parade Street, and Trout Gulch Road would need to be reconstructed.

The Build Alternative would require full or partial acquisitions for the construction of the State Route 1 and Coastal Rail Trail Segment 12 ultimate trail improvements, as well as temporary easements for construction activities such as the construction of sound walls and retaining walls along State Route 1 and the Santa Cruz Branch Rail Line. In addition, the fish passage at Valencia Creek will be implemented.

Under the No-Build (No-Action) Alternative, the existing lane configuration and width of State Route 1 would remain as it is. No widening of State Route 1 would occur, and auxiliary lanes, Bus-on-Shoulder improvements, and Coastal Rail Trail Segment 12 would not be built.

The project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. Caltrans is the lead agency under NEPA. Caltrans is the lead agency under CEQA. Additionally, the Federal Highway Administration's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code Section 327 and the Memorandum of Understanding dated May 27, 2022, and executed by the Federal Highway Administration and Caltrans.

After receiving comments from the public and reviewing agencies, a Final Environmental Impact Report/Environmental Assessment has been prepared. The Final Environmental Impact Report/Environmental Assessment includes responses to comments received on the Draft Environmental Impact Report/Environmental Assessment and identifies the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact or require an environmental impact statement for compliance with NEPA. A Notice of Availability of the Finding of No Significant Impact would be sent to the affected units of federal, state, and local government, and the State Clearinghouse in compliance with Executive Order 12372.

Summary of Potential Impacts from Alternatives

Potential Impact	Build Alternative (State Route 1 and Bus-on-Shoulder)	Build Alternative (Optional First Phase)	Build Alternative (Ultimate Trail Configuration)	No-Build (No-Action) Alternative
Land Use—Consistency with the Santa Cruz County General Plan	No Impact	No Impact	No Impact	No Impact
Coastal Zone	The project is consistent with policies from the County of Santa Cruz Local Coastal Program. Project design and avoidance and minimization measures would ensure protection against coastal hazards.	Same as Build Alternative.	Same as Build Alternative.	Inconsistent with several policies in the County of Santa Cruz 1994 General Plan and Local Coastal Program
Parks and Recreational Facilities	No permanent impacts on Aptos Village County Park or any other public parks or recreational facilities would occur.	Same as Build Alternative.	Same as Build Alternative.	No Impact
Growth	The project is not expected to result in growth-related effects that would result in significant impacts on resources of concern.	Same as Build Alternative.	Same as Build Alternative.	No Impact
Community Character and Cohesion	Due to the limited number of parcels affected by permanent acquisitions, and the dispersal of the temporary impacts along the State Route 1 corridor, the overall adverse effect on neighborhood cohesion would be limited.	Same as Build Alternative.	Same as Build Alternative.	Worsened delay could result in access impacts.
Relocations and Real Property Acquisition	25 temporary construction easements, six permanent partial acquisitions, four underground easements are needed.	No property acquisitions.	15 temporary construction easements, 13 permanent partial acquisitions, two aerial easements.	No Impact

Summary

Potential Impact	Build Alternative (State Route 1 and Bus-on-Shoulder)	Build Alternative (Optional First Phase)	Build Alternative (Ultimate Trail Configuration)	No-Build (No-Action) Alternative
Environmental Justice	No Impact	No Impact	No Impact	No Impact
Utilities and Emergency Services	Temporary impacts to utilities and short-term road closures during construction. No impacts on solid waste.	Similar to Build Alternative.	Temporary impacts to utilities and no impacts on solid waste.	No Impact
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Temporary impacts related to access, circulation, parking, public transportation, and bicycle and pedestrian facilities during construction. Compared to the No-Build Alternative, delay and bottlenecks would be reduced on State Route 1, traffic speeds and fuel efficiency would increase, and traffic would be diverted from local streets.	Similar to Build Alternative.	Similar to Build Alternative.	Existing circulation and access deficiencies would remain and worsen.
Visual/Aesthetics	Visual impacts from loss of vegetation required for widening and construction of sound walls and retaining walls. Blocking of views by sound walls and retaining walls. AMMs VA-1 through VA-18 are required.	Visual impacts from loss of vegetation required. AMMs VA-1 through VA-18 are required.	Visual impacts from loss of vegetation required. AMMs VA-1 through VA-18 are required.	No Impact
Cultural Resources	Project activities would not affect the Bay View Hotel but would affect the Southern Pacific Railroad and could affect archaeological resources CA-SCR-2/H and CA-SCR-222/H during construction. AMMs CUL-1 through CUL-3 and CUL-4 are required.	Impacts on secondary character-defining features (removal of rails and ties) but not primary character-defining feature (i.e., railroad alignment). Similar to Build Alternative for archaeological resources. AMMs CUL-1 through CUL-4 are required.	This alternative would not destroy or significantly impact any character-defining features of the property. Similar to Build Alternative for archaeological resources. AMMs CUL-1 through CUL-4 are required.	No Impact

Summary

Potential Impact	Build Alternative (State Route 1 and Bus-on-Shoulder)	Build Alternative (Optional First Phase)	Build Alternative (Ultimate Trail Configuration)	No-Build (No-Action) Alternative
Hydrology and Floodplain	No change in the 100-year water surface elevation; no substantial impacts on floodplain; no significant longitudinal encroachment; and no sea level rise impacts.	Same as Build Alternative.	Same as Build Alternative.	No Impact
Water Quality and Storm Water Runoff	Potential impacts from construction include stormwater runoff, erosion, water quality degradation, and short-term discharges. An increase in impervious surfaces would result in a loss in volume or amount of water that may have previously recharged localized aquifers and thereby reduce regional groundwater volumes.	Similar to Build Alternative.	Similar to Build Alternative.	No Impact
Geology, Soils, Seismicity and Topography	Potential impacts for severe ground shaking from earthquakes. Low risk for landslides, liquefaction, and tsunamis. Compliance with the erosion-related requirements would ensure that construction activities do not result in significant erosion. Low risk for expansive soil impacts.	Same as Build Alternative.	Same as Build Alternative.	No Impact
Paleontology	Potential for direct impacts during excavation for State Route 1 and the Coastal Trail, construction of soundwalls, retaining walls, and relocating utilities. Mitigation Measure-PALEO-1 would be required	Same as Build Alternative. Mitigation Measure-PALEO-1 would be required	Same as Build Alternative. Mitigation Measure-PALEO-1 would be required	No Impact
Hazardous Waste and Materials	Potential for human exposure to existing contaminated soil or groundwater. Moderate risk for previously unknown hazardous materials. Potential for hazardous conditions from the accidental release of hazardous materials during construction activities. AMMs HAZ-1 and HAZ-2 are required.	Same as Build Alternative. AMMs HAZ-1 and HAZ-2 are required.	Same as Build Alternative. AMMs HAZ-1 and HAZ-2 are required.	No Impact
Air Quality	The project would generate minimal air quality impacts for Federal Clean Air Act criteria pollutants and have not been linked with any special Mobile Source Air Toxics concerns. Construction activities are expected to result in short term degradation of air quality and increases in emissions from traffic during delays.	Same as Build Alternative.	Same as Build Alternative.	No Impact

Summary

Potential Impact	Build Alternative (State Route 1 and Bus-on-Shoulder)	Build Alternative (Optional First Phase)	Build Alternative (Ultimate Trail Configuration)	No-Build (No-Action) Alternative
Noise and Vibration	Temporary increase in noise levels due to the operation of construction equipment and construction activities. Potential long-term noise impacts due to traffic noise. Polling of the benefitted receptors would be required.	No construction or operational impacts.	No construction or operational impacts.	No Impact
Energy	Temporary energy consumption during construction for the use of construction equipment and on-road vehicles. With substantial improvements in engine fuel efficiency anticipated, fuel consumption per vehicle mile will decrease in the future. AMMs EN-1 through EN-3 are required.	Similar to Build Alternative. AMMs EN-1 through EN-3 are required.	Similar to Build Alternative. AMMs EN-1 through EN-3 are required.	No Impact
Natural Communities	Permanent impacts associated with the project would result from project activities and tree removal. Temporary impacts would occur throughout the work area and would result from equipment operation, access, staging, worker foot traffic, and utility relocation. Both temporary and permanent impacts to annual grassland, eucalyptus woodland, riparian woodland, mixed coast live oak woodland, mixed coniferous woodland, eucalyptus woodland, ruderal/disturbed habitat areas, and developed/landscaped areas. AMMs BIO-1 through BIO-24 are required.	Similar to Build Alternative. AMMs BIO-1 through BIO-24 are required.	Similar to Build Alternative. AMMs BIO-1 through BIO-24 are required.	No Impact
Wetlands and Other Waters	The project would result in about 0 acre of permanent impacts and 0.226 acre of temporary impacts to waters of the State. The project would also result in 0.061 acre of permanent impacts and 0.697 acre of temporary impacts to Coastal Zone riparian non-wetlands and stream.	Similar to Build Alternative.	Similar to Build Alternative.	No Impact
Plant Species	No Impact	No Impact	No Impact	No Impact

Summary

Potential Impact	Build Alternative (State Route 1 and Bus-on-Shoulder)	Build Alternative (Optional First Phase)	Build Alternative (Ultimate Trail Configuration)	No-Build (No-Action) Alternative
Animal Species	Potential impacts from grading or other earthwork could affect California giant salamanders and Santa Cruz black salamanders. Construction activities involving in-water work and dewatering could impact western pond turtles. Construction could impact Townsend's big-eared bats, hoary bats, other roosting bats, and San Francisco dusky-footed woodrat. AMMs BIO-25 through BIO-42 are required	Same as Build Alternative.	Same as Build Alternative.	No Impact
Threatened and Endangered Species	Potential impacts on monarch butterfly, California red-legged frogs, Central California coast steelhead, tidewater goby, and southwestern willow flycatcher during construction. AMMs BIO-17, BIO-43 and BIO-44, and BIO-45 through BIO-88 are required.	Same as Build Alternative. AMMs BIO-17, BIO-43 and BIO-44, and BIO-45 through BIO-88 are required.	Same as Build Alternative. AMMs BIO-17, BIO-43 and BIO-44, and BIO-45 through BIO-88 are required.	No Impact
Invasive Species	During construction, areas where temporary disturbance occurs would be more susceptible to the introduction and colonization or spread of invasive plants. AMMs BIO-87 through BIO-91 are required.	Same as Build Alternative. AMMs BIO-87 through BIO-91 are required.	Same as Build Alternative. AMMs BIO-87 through BIO-91 are required.	No Impact
Cumulative Impacts	The incremental contribution of the project to the cumulative visual impact may be considerable.	Same as Build Alternative.	Same as Build Alternative.	Existing traffic network deficiencies remain and worsen.
Wildfire	The project is in an urban area and is not expected to exacerbate the impacts of wildfires intensified by climate change.	Same as Build Alternative.	Same as Build Alternative.	No Impact
Climate Change	Long-term operation of the Build Alternative would decrease greenhouse gas emissions slightly compared to the No-Build Alternative.	No Impact	No Impact	No Impact

Note: Avoidance, minimization, and mitigation measures are summarized in Appendix C.

S.5 Coordination with Other Public Agencies

Caltrans has had several conference calls with the California Department of Fish and Wildlife regarding a fish passage barrier at Valencia Creek. Because this is a known fish passage barrier, it was determined that this project falls within the requirements of Senate Bill 857 and Streets and Highways Code section 156.3 and section 156.4, and that remediation of the fish passage barrier is required. Caltrans and the California Department of Fish and Wildlife also conducted a field visit on November 17, 2022 to see the fish passage barrier and discuss remediation options. The California Department of Fish and Wildlife responded in a memo with comments and recommendations on January 12, 2023.

S.6 Notice of Preparation

A Notice of Preparation was published on September 17, 2020. It was filed with the State Clearinghouse and sent to the appropriate elected officials, agencies, and interested parties. A copy of the Notice of Preparation is included in Appendix D.

An online scoping open house was open from September 17, 2020 through October 18, 2020. The purpose of the online open house was to present to the public factors to be considered in the draft environmental document and to receive comments. The online scoping open house was announced in the Notice of Preparation. Sixty-two comment letters were received, and comments included:

- Requests for descriptions of project elements and measurements of impact areas.
- Comments on the purpose and need of the project.
- Recommendations for alternatives, including a trail-only project, bus-only lanes instead of auxiliary lanes, increased bus service, construction of a trail without rail service, and consider the project elements separately rather than combining them.
- Comments on special status species, including recommendations to include mitigation measures and avoid all “take” of the Santa Cruz long-toed salamander.
- Comments to avoid impacts to wetlands and waters, and to consider bridge designs that avoid placing piles in Aptos Creek.
- Comments regarding sea level rise and climate change.
- Comments to evaluate opportunities to maximize coastal access.
- Comments regarding traffic, including safety concerns, vehicle miles traveled, Bus-on-Shoulder protocols, and loss of parking.

Summary

- Concerns related to increased impervious surface and a resulting reduction in aquifer recharge and loss of mature trees.
- Requests to inform property owners of the potential of the acquisitions of private property.
- General support and opposition to the project.

Since the Notice of Preparation was released, the trail component of the project was refined to present the optional first phase and the ultimate trail configuration. In addition, the current design widens the existing Aptos Creek Bridge on the coastal (southbound) side of State Route 1, which requires the realignment of Moosehead Drive.

S.7 Necessary Permits and Approvals

In addition to the completion of CEQA and NEPA documentation and project approvals by the lead and responsible agencies, the following permits, licenses, agreements, and certifications are required for project construction (revised in the final environmental document to add additional permits/approvals):

Agency	Permits, Licenses, Agreements, and Certifications	Status
U.S. Fish and Wildlife Service	Coordination regarding threatened and endangered species Section 7 formal consultation and Biological Opinion for Central California coast Steelhead and Tidewater Goby	To be obtained during the project design phase.
National Marine Fisheries Service	Coordination regarding threatened and endangered species Section 7 formal consultation and Biological Opinion for Central California coast Steelhead and Tidewater Goby	To be obtained before construction starts.
U.S. Army Corps of Engineers	Section 404 Permit	To be obtained before construction starts.
California Department of Fish and Wildlife	Section 1602 Department of Fish and Game Code Streambed Alteration Agreement	To be obtained before construction starts.
California Coastal Commission	Coastal Development Permit	To be obtained before construction starts.
State Historic Preservation Officer	National Historic Preservation Act Section 106 Concurrence	To be obtained before approval of the final environmental document.

Summary

Agency	Permits, Licenses, Agreements, and Certifications	Status
State Water Resources Control Board	Construction General National Pollutant Discharge Elimination System Permit requirements through Caltrans National Pollutant Discharge Elimination System Permit	To be obtained before construction starts.
Air Quality Management District	Formal notification prior to construction	To be obtained before construction starts.
Regional Water Quality Control Board	Section 401 Water Quality Certification and coverage under the existing Caltrans National Pollutant Discharge Elimination System Permit (Order Number 99-06-DWQ) National Pollutant Discharge Elimination System Municipal Separate Storm Sewer Systems General Permit	To be obtained before construction starts.
Santa Cruz County Planning Department	Coastal Development Permit for development within the Coastal Zone within the Santa Cruz County Local Coastal Program area Determination and Agreement of any need to revise the Floodplain Map	To be obtained before construction starts.
Federal Surface Transportation Board	Permit for removal of the rail line and related features	To be obtained before construction starts.
California Public Utilities Commission	Permit for removal of the rail line and related features	To be obtained before construction starts.
California Transportation Commission	Approval of project funding for each phase of project development	To be obtained before construction starts

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Chapter 1 **Proposed Project**

1.1 Introduction

The California Department of Transportation (Caltrans), in cooperation with the Santa Cruz County Regional Transportation Commission and the County of Santa Cruz, proposes to widen State Route 1 to include auxiliary lanes, accommodate Bus-on-Shoulder operations between the Freedom Boulevard and State Park Drive interchanges, and construct Coastal Rail Trail Segment 12. Caltrans, as assigned by the Federal Highway Administration, is the lead agency under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). This project is currently programmed through the Santa Cruz County Regional Transportation Improvement Plan and the State Transportation Improvement Program.

One Build Alternative and the No-Build Alternative are proposed for further consideration. The project is located in Santa Cruz County on State Route 1 from post mile 8.1, south of Freedom Boulevard, to post mile 10.7, north of State Park Drive, with 1.14 miles of trail along the Santa Cruz County Regional Transportation Commission-owned Santa Cruz Branch Rail Line between State Park Drive and Rio Del Mar Boulevard. The total length of the project on State Route 1 is 2.6 miles, and on the Santa Cruz Branch Rail Line is 1.14 miles. Within the limits of the proposed project, State Route 1 is a controlled access freeway with two 12-foot lanes; shoulder width varies within project limits. The average width of the inside shoulders is approximately 5 feet, and the average width of the outside shoulders is approximately 10 feet. Within the project area, the existing railroad right-of-way is generally in the range of 40 to 55 feet wide, with the existing railroad tracks generally in the center of the right-of-way. The existing railroad has at-grade crossings at State Park Drive, Aptos Creek Road, and Trout Gulch Road, with bridges over State Route 1 at two locations, Aptos Creek/Soquel Drive and Valencia Creek/Soquel Drive. The Santa Cruz Branch Rail Line crosses under Rio Del Mar Boulevard. The Santa Cruz Branch Rail Line is currently an active freight railroad. The project vicinity and location are shown in Figures 1-1 and 1-2, respectively. Figure 1-3 shows the project components.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project is to do the following.

- Reduce delay and improve system reliability and safety along State Route 1.
- Improve traffic operational movements, local circulation, and transit operations.

- Enhance bicycle and pedestrian connectivity and safety, including access across State Route 1 within the project limits.
- Promote the use of alternative transportation modes to increase transportation system capacity and reliability, improve health and reduce mortality, as well as to reduce vehicle miles of travel and vehicular emissions.

1.2.2 Need

Reduce Delay and Improve System Reliability

The State Route 1 corridor within project limits currently experiences high traffic volumes leading to travel delays, primarily during peak periods. The State Route 1 northbound direction during the AM peak period and the State Route 1 southbound direction during the PM peak period are the peak directions of travel. Under existing conditions, traffic volumes for the peak directions are approaching or equal to the capacity of the freeway. In addition, the presence of queuing on the corridor along the peak directions indicates that the peak direction traffic demand exceeds the capacity.

According to the Traffic Operations Analysis Report (CDM Smith 2021), average weekday daily mainline traffic on State Route 1 under No Build conditions and within the project limits are expected to grow between the Existing Year (2019) and the Opening Year (2025) by 4.2 percent in the northbound direction and 5.7 percent in the southbound direction and between the Existing Year (2019) and the Horizon Year (2045) by 17.4 percent and 20.9 percent, respectively. In addition, average weekday daily ramp traffic (off-ramps and on-ramps combined total) on State Route 1 under No Build conditions is expected to grow between the Existing Year (2019) and the Opening Year (2025) by 3.6 percent in the northbound direction and 3.5 percent in the southbound direction and between the Existing Year (2019) and the Horizon Year (2045) by 12.3 percent and 11.1 percent, respectively.

Several bottlenecks along State Route 1 in the southbound and northbound directions cause delays during peak hours. The Build Alternative also provides critical bottleneck relief.

Improve Overall Operations with Auxiliary Lanes

Cut-through traffic, or traffic on local streets, is increasing because drivers are seeking to avoid delays on State Route 1.

According to the Traffic Operations Analysis Report, the auxiliary lanes would result in a significant increase in travel speed in the southbound State Route 1 during PM peak period from 32 miles per hour in the Existing Year (2019) to 58 miles per hour in the Opening Year (2025). Similar benefits would be anticipated also in the northbound State Route 1 during AM peak period, however, the Traffic Operations Analysis Report also found that a potential

bottleneck in the northbound direction, west of the Soquel Dr interchange, would result in small northbound travel speed benefits.

Daily vehicle hours of delay in northbound and southbound directions combined would reduce from 4,120 vehicle-hours per day the Existing Year (2019) to 2,430 vehicle-hours per day in the Opening Year (2025), that is, by 41 percent.

According to the Traffic Operations Analysis Report, improved travel conditions due to reduced delays and increased speeds on State Route 1 would shift vehicles from local roads back to State Route 1, reducing neighborhood cut-through traffic (CDM Smith 2021).

The Traffic Operations Analysis Report assumed that the existing 91X transit route would change to a 91X express service by using State Route 1 between Main Street interchange near Watsonville Transit Center and Morrissey Boulevard interchange near Santa Cruz Transit Center and avoiding Soquel Drive between State Park interchange and Soquel Drive interchange. Due to the bus-on-shoulder and auxiliary lane operations and the routing change, this project would reduce 91X transit route travel times between Santa Cruz and Watsonville by 15 minutes in the northbound direction during the AM peak travel period and would reduce travel times by 18 minutes in the southbound direction during the PM peak travel period in the opening year (2025).

Within the project limits on the mainline segments, fatal plus injury collision rates (fatal and injury collision rates combined) as well as total collision rates are higher than the statewide average. On two out of fourteen ramps, fatal plus injury collision rates as well as total collision rates are higher than the statewide average, on two out of fourteen ramps, the total collision rate is higher than the statewide average, and on two out of fourteen ramps, fatal and injury collision rates are higher than the statewide average. On average 60 percent of the collisions on all State Route 1 northbound mainline segments are rear-end type; while on the State Route 1 southbound mainline segments this is 39 percent on average. Sideswipe incidents form around 16 percent of the collisions on the mainline in both directions of State Route 1. Collisions at all three interchanges are mainly rear-end type. Some of these types of collisions may be attributed to the lack of auxiliary lanes.

Incidents in the peak directions blocking a lane on the two-lane (each way) State Route 1 have a compound effect. Delay can also cause incidents. Drivers of vehicles approaching the end of the queue may fail to slow down or stop due to following too closely or excessive speed resulting in rear-end collisions. Distracted driving under stop-and-go conditions can also lead to such collisions. Adding auxiliary lanes will improve the freeway merge/diverge operations and reduce collisions.

The project would add auxiliary lane segments that are each less than one mile in length, which means that it is exempt from a vehicle miles traveled analysis under the Caltrans Traffic Analysis Framework and Traffic Analysis under CEQA guidelines. In addition, the auxiliary lane segments of the project would act independently and thus are not expected to have cumulative effects on freeway mainline capacity, which means that the auxiliary lanes would not result in significant changes in vehicle miles traveled.

Enhance Bicycle and Pedestrian Connectivity and Safety

There are limited opportunities for pedestrians and bicyclists to safely cross State Route 1 and navigate the project corridor, even though portions of the project area are designated as regional bicycle routes. Coastal Rail Trail Segment 12 would provide new access to Aptos Village and across State Route 1 for bicycle and pedestrian modes of travel. The new trail overcrossings of State Route 1 would provide high-visibility pedestrian and bicycle crossing facilities and improve pedestrian and bicycle connectivity between the areas on the north and south sides of the State Route 1 corridor.

The project would result in per trip bike and walk travel time savings of up to 7 minutes each, which translates to 17.2 person-hours per day of bike travel time savings and 5.0 person-hours per day of pedestrian travel time savings under 2025 Build conditions.

The project would result in a reduction of nearly 18.6 active-transportation-involved crashes per year on average under 2025 Build conditions.

Promote Alternative Transportation Modes

Currently there are insufficient incentives to increase transit service in the State Route 1 corridor because delay threatens reliability and cost-effective transit service delivery. The addition of the bus-on-shoulder component and construction of Segment 12 of the Coastal Rail Trail would increase the use of alternative transportation modes. Delays on State Route 1 can discourage transit use. However, peak period peak direction travel times between the Santa Cruz Metro Transit Center in the north and the Watsonville Transit Center in the south are expected to improve with bus-on-shoulder operations. In addition, it is anticipated that by reducing trip lengths with new pedestrian/bicycle crossings and by increasing overall connectivity with Segment 12 of the Coastal Rail Trail, more auto drivers will utilize alternative modes of transportation.

The project would result in a reduction of 0.076 mortalities per year due to the health-related benefits of increased use of active transportation modes.

Due to bus-on-shoulder and trail improvements, the project would result in a net decline of 6,952 vehicle miles traveled per day and 8,094 vehicle miles traveled per day under 2025 and 2045 Build conditions, respectively.

1.2.3 Independent Utility and Logical Termini

Regulations from the Federal Highway Administration (23 Code of Federal Regulations 771.111(f)) require that the project evaluate:

- If the proposed project has logical termini,
- If the proposed project has independent utility, and
- If the proposed project does not restrict the consideration of alternatives for other transportation improvements.

The Federal Highway Administration defines logical termini as rational endpoints for a transportation improvement and a review of environmental impacts for the transportation improvement.

The proposed project possesses logical termini because it connects two logical endpoints for the project and is of sufficient length to address matters on a broad scope. The proposed improvements would not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements. Continuing coordination between Caltrans, Santa Cruz County Regional Transportation Commission, and the County of Santa Cruz would avoid potential conflicts with alternatives for this project and other planned area transportation improvements.

Independent utility is a Federal Highway Administration requirement that highway projects are usable and are a reasonable expenditure even if no additional transportation improvements in the area are made. The Federal Highway Administration states that “as long as a project would serve a significant function by itself (i.e., it has independent utility), there is no requirement to include separate but related projects in the same analysis.”

The proposed project has independent utility and logical termini. The auxiliary lanes and Bus-on-Shoulder improvements would specifically improve congested conditions on the State Route 1 corridor between the Freedom Boulevard interchange and the State Park Drive interchange. The proposed auxiliary lanes and Bus-on-Shoulder improvements between these two interchanges would function without requiring additional improvements outside the project area. Additionally, the proposed Coastal Rail Trail Segment 12 would provide improved safety for pedestrian and bicycle travel along the State Route 1 corridor between Rio Del Mar Boulevard and State Park Drive, addressing the need to safely cross State Route 1 and safely navigate the corridor independent of other safety and alternative transportation improvements outside the proposed project area. Development of the proposed project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

1.3 Project Description

This section describes the proposed project that meets the purpose and need while avoiding or minimizing environmental impacts. The alternatives are the Build Alternative and the No-Build (No-Action) Alternative.

The project is located in Santa Cruz County on State Route 1 from post mile 8.1, south of Freedom Boulevard, to post mile 10.7, north of State Park Drive, with 1.14 miles of trail along the Santa Cruz County Regional Transportation Commission-owned Santa Cruz Branch Rail Line between State Park Drive and Rio Del Mar Boulevard. The total length of the project on State Route 1 is 2.6 miles, and on the Santa Cruz Branch Rail Line is 1.14 miles. Within the limits of the proposed project, State Route 1 is a controlled access freeway with two 12-foot lanes; shoulder width varies within project limits. The purpose of the project is to reduce delay on State Route 1, enhance bicycle and pedestrian connections, promote use of alternative modes of transportation, and provide Coastal Rail Trail access across State Route 1.

1.3.1 Build Alternative

The components of the Build Alternative are discussed in detail below.

Auxiliary Lanes

The proposed Build Alternative (Figure 1-3) would involve the construction of auxiliary lanes on both the northbound and southbound sides of State Route 1 between the Freedom Boulevard and Rio Del Mar Boulevard interchanges and between the interchanges of Rio Del Mar Boulevard and State Park Drive. The auxiliary lanes are designed to improve merging operations and reduce conflicts between traffic entering and exiting State Route 1 by connecting the on-ramp of one interchange to the off-ramp of the next. The auxiliary lanes are not designed to serve through traffic.

The total roadway widening would be approximately 2.6 miles in length. Southbound, the auxiliary lanes would begin at the existing State Park Drive loop on-ramp and end at the existing off-ramp to Freedom Boulevard. Northbound, the auxiliary lanes would begin at the existing Freedom Boulevard on-ramp and end at the existing diagonal off-ramp to State Park Drive.

The new auxiliary lanes would be 12 feet wide. From Freedom Boulevard to Rio Del Mar Boulevard, the width needed for the new lane would be added in the median. The existing median barrier would be reconstructed in its current location. From Rio Del Mar Boulevard to State Park Drive, the width needed for the new lane would be added outside the existing shoulders; the outside shoulders would be standard 10 feet wide.

Moosehead Drive to the south of State Route 1, south of Aptos Creek, would be realigned where it runs parallel to State Route 1 due to the outside

widening of State Route 1. A new retaining wall would be placed along the outside freeway shoulder to support the realignment that would include horizontal and vertical adjustments. Moosehead Drive is not a through street, however at the end of Moosehead Drive there is emergency access available through a locked gate to the adjacent Carrera Circle residential area. Temporary closures of Moosehead Drive to conform to existing pavement at each end of the realigned segment of roadway may be necessary.

Structures, State Route 1

The Build Alternative would include the replacement of the two Santa Cruz Branch Rail Line railroad bridges over State Route 1 and widening of the State Route 1 bridge over Aptos Creek and Spreckels Drive to accommodate the proposed auxiliary lanes.

The existing two-span Santa Cruz Branch Rail Line railroad bridges (underpass structures) are proposed to be replaced with longer spans. In addition to the railroad bridges, new trail overcrossings would be constructed adjacent to the new railroad bridges for the ultimate trail configuration of the Coastal Rail Trail Segment 12 for the State Route 1 improvements.

The widening of the State Route 1 bridge over Aptos Creek and Spreckels Drive would occur on the south side of State Route 1 only and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. The widened bridge would accommodate six lanes, each 12 feet wide (four through-lanes plus an auxiliary lane in each direction), 10-foot-wide outside shoulders, and a 9-foot-wide median with a 2-foot-wide inside shoulder in the northbound direction and 5-foot-wide inside shoulder in the southbound direction.

A program level design to establish a Corridor Investment Program on State Route 1 is listed on Santa Cruz Regional Transportation Commission's 2045 Regional Transportation Plan which was approved in June 2022. The Santa Cruz Regional Transportation Commission's approach is to prioritize funding for the initial phases of the project, including reconstructing most interchanges and replacing existing structures along State Route 1.

Retaining Walls, State Route 1

The Build Alternative would include retaining walls at the following locations along State Route 1 where existing hillsides need to be set back to allow for freeway widening and where fill will be brought into embankments (Figure 1-3). See Appendix G, Geometric Approval Drawings, for location of station numbers.

Direction	Location	Length	Maximum Height
Northbound	post mile 9.6-9.7 (258+90 – 261+26)	235 feet	23 feet
Northbound	post mile 9.8-9.9 (269+26 – 273+42(Modification of an existing retaining wall))	416 feet	8 feet
Northbound	post mile 10.2-10.3 (289+00 – 295+30)	611 feet	21 feet
Southbound	post mile 9.6-9.7 (258+55 – 263+01)	445 feet	23 feet
Southbound	post mile 9.8 (265+55 – 268+46)	280 feet	19 feet
Southbound	post mile 9.85 (269+71 – 270+70)	100 feet	9 feet
Southbound	post mile 9.95 (273+20 – 277+02)	395 feet	20 feet
Southbound	post mile 10.0 (277+02 – 278+92)	191 feet	20 feet
Southbound	post mile 10.05 (281+58 – 284+41)	283 feet	22 feet
Southbound	post mile 10.1-10.35 (284+41 – 292+80)	860 feet	27 feet

Sound Walls, State Route 1

Of the ten sound walls analyzed in the Noise Abatement Decision Report, the Build Alternative evaluates the following reasonable and feasible sound walls at the following locations along State Route 1 to abate noise impacts (Figure 1-3). See Appendix G, Geometric Approval Drawings, for location of station numbers. See Chapter 2, Section 2.2.7 for information about the requirements for sound wall consideration.

Direction	Location	Length	Maximum Height
Northbound	post mile 9.7-9.8 (261+81 – 267+49)	606 feet	16 feet
Southbound	post mile 9.95-10.1 (276+62 – 284+41)	885 feet	14 feet

Bus-on-Shoulder Features

The proposed project would include construction of transit-only shoulder lanes within interchanges (off-ramp to on-ramp). The shoulder improvements would allow buses to drive on the new auxiliary lanes between interchanges and the outside shoulder through the interchanges. At the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchanges, the project would widen and improve State Route 1 shoulders, which currently

lack the width and pavement structural section to support bus operations. Bus-on-shoulder lanes would be used by Santa Cruz Metropolitan Transit District buses only when the general traffic speed on the highway drops below 35 miles per hour.

Cross Section, State Route 1 Bus-on-Shoulder

The added auxiliary lanes coupled with the Bus-on-Shoulder improvements allow the transit operator to use the auxiliary lane in between interchanges and use the shoulder between the off-ramp and on-ramps through the interchanges. Within the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchange areas, the highway shoulders would be 12 feet wide.

Other Features, State Route 1 Bus-on-Shoulder

New signs would be installed to advise motorists that only buses are allowed to use the highway shoulders through interchanges during peak traffic hours. Along northbound State Route 1, a sign would be provided south of each of the three interchanges in the project area. Along southbound State Route 1, a sign would be installed north of each interchange. Shoulders would be painted red to indicate bus-only use.

Coastal Rail Trail Segment 12

The limits of Coastal Rail Trail Segment 12 extend from the southern terminus of the trail segment at Sumner Avenue, just south of the Rio Del Mar Boulevard underpass, to the northern terminus at State Park Drive. The proposed Coastal Rail Trail Segment 12 includes the construction of a paved bicycle and pedestrian shared use trail within the Santa Cruz Branch Rail Line right-of-way on the inland side of the tracks, consistent with the approved Monterey Bay Sanctuary Scenic Trail (MBSST) Network Master Plan (MBSST Network Master Plan) (Santa Cruz County Regional Transportation Commission 2014: 4-67) (Figure 1-4), with an optional first phase. The trail segment would include a new at-grade trail connection to Sumner Avenue just south of the Rio Del Mar Boulevard underpass where the existing railroad tracks pass under Rio Del Mar Boulevard and a new sidewalk on the north side of Sumner Avenue between the terminus of the trail and the existing sidewalk on Rio Del Mar Boulevard.

The Santa Cruz County Regional Transportation Commission wishes to preserve the Santa Cruz Branch Rail Line corridor for transportation uses, which includes recreational passenger rail, freight rail, a multiuse trail, and future commuter rail transit. The ultimate configuration to accommodate all proposed transportation uses along the Santa Cruz Branch Rail Line is a bicycle and pedestrian shared-use trail adjacent to railroad tracks. The Santa Cruz Branch Rail Line is currently an active freight railroad with Santa Cruz County Regional Transportation Commission owning the right-of-way. The Santa Cruz County Regional Transportation Commission contracts to serve

freight and recreational passenger rail along the freight easement. The Santa Cruz County Regional Transportation Commission's contracted freight operator has indicated that they may file for abandonment of freight along the Santa Cruz Branch Rail Line.

As a method of preserving the right-of-way of a corridor that otherwise could be abandoned, the Santa Cruz County Regional Transportation Commission could consider railbanking the corridor. The Department of Interior defines railbanking as the preservation of a railroad corridor for future rail use. Railbanking is accomplished under the National Trails System Act through provisions that allow a railbanked corridor to be used for interim trail use purposes through a voluntary agreement reached between a railroad and a trail manager. The right-of-way is preserved for future freight reactivation and could allow the removal of the railroad tracks and construction of a trail in the interim condition.

Consequently, an optional first phase is being considered for Segment 12 of the Coastal Rail Trail, where all or a portion of the trail could be located along the alignment of the existing railroad tracks.

Ultimate Trail Configuration

Trail Alignment

The ultimate trail configuration includes construction of a paved bicycle and pedestrian shared-use trail alongside the existing railroad track alignment. New trail bridge crossings of State Route 1 at two locations and adjacent to the existing railroad bridges at Aptos Creek/Soquel Drive, and Valencia Creek/Soquel Drive would be constructed. New at-grade trail crossings will be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road. New trail bridges over Soquel Drive may require temporary overnight closures to support construction of the new bridge spans over the local streets. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed, and potential temporary overnight closures may occur.

Structures

- At the two locations where the existing railroad bridges cross over State Route 1, the Rail Trail will be placed adjacent to the reconstructed rail underpasses on separate independent structures.
- Where the Rail Trail crosses over Aptos Creek, Valencia Creek, and Soquel Drive, the existing structures have been evaluated for their loadbearing capacities, and it has been determined there is not enough data to cantilever the Rail Trail. Therefore, the project would include construction of new Rail Trail bridges adjacent to the existing railroad structures on separate independent structures.

- For areas where the Rail Trail is on an independent structure from the railroad bridges or grade, the separation between the two structures would be a minimum of 5 feet.

Retaining Walls

Retaining walls would be constructed in the following locations for the Coastal Rail Trail Segment 12 alignment. See Appendix G, Geometric Approval Drawings, for location of station numbers.

Direction	Location (Station)	Length	Maximum Height
Trail Northbound	999+79 – 1006+50	660 feet	6 feet
Trail Northbound	1007+00 – 1016+15	915 feet	8 feet
Trail Northbound	1022+22 – 1024+56	245 feet	8 feet
Trail Northbound	1035+00 – 1038+32	335 feet	18 feet
Trail Northbound	1041+32 – 1044+49	310 feet	20 feet
Trail Northbound	1052+75 – 1054+25	150 feet	1 foot
Trail Northbound	1056+00 – 1059+25	325 feet	1 foot
Trail Northbound	1060+00 – 1063+78	350 feet	27 feet
Trail Southbound	999+79 – 1012+00	1235 feet	8 feet
Trail Southbound	1035+56 – 1038+67	311 feet	18 feet
Trail Southbound	1047+42 – 1048+50	110 feet	6 feet

Fencing

Fencing may be used to separate trail users and the railroad for the ultimate trail improvements (Figure 1-4). In accordance with the Federal Railroad Administration guidelines, there would be a 10-foot offset from the centerline of the railroad to the edge of the trail, although an 8-foot, 6-inch offset from the centerline of the railroad may be allowed in some circumstances. The fencing type is undetermined at this time but could be constructed using concrete posts (4 feet, 6 inches in height) etched to resemble wood, and multiple smooth wire strands. Fence post construction is anticipated to require 3-foot-deep excavation. The new trail bridges over Aptos Creek, Valencia Creek, and Soquel Drive would include a railing.

Optional First Phase

It is possible that the common carrier could file for abandonment of freight operations with the Surface Transportation Board along the Santa Cruz Branch Rail Line at any time, in which case all or a portion of the Santa Cruz Branch Rail Line would likely be railbanked to preserve the corridor for future freight reactivation but could then be used for a multiuse trail as an interim condition. The Optional First Phase includes three parts: implementation of the interim trail, demolition of the interim trail and rebuilding the rail line, and construction of the ultimate trail configuration.

Trail Alignment

All or a portion of the trail would be constructed in approximately the same location of the existing railroad tracks by removal of the rails and ties from just south of Rio Del Mar Boulevard at the southern terminus with Sumner Avenue to the northern terminus at State Park Drive, as shown in Figure 1-5. The two existing railroad bridges over State Route 1 would be removed and two new trail overcrossings over State Route 1 would be constructed in their place. The existing railroad bridges at Aptos Creek and Valencia Creek/Soquel Drive (south) would be repurposed for the new trail by removing the railroad decking and replacing with a new trail deck and railing system. The existing single-span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.

Stair access between the new trail and existing Soquel Drive (north) is proposed. A stair connection from the trail to Soquel Drive would begin on the south side of the trail west of the existing railroad bridge over Soquel Drive with a terminus at the Soquel Drive/Spreckels Drive signalized intersection. A new crosswalk would be provided at the Soquel Drive/Spreckels Drive signalized intersection. All trail users can access Soquel Drive via the at-grade trail crossing with Aptos Creek Road as an alternative to using the stairs. The alternative route would be identified with new signage. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed.

New at-grade trail crossings would be constructed at Trout Gulch Road, Parade Street, and Aptos Creek Drive in the approximate location of the existing railroad tracks.

Structures

- At the two locations where the existing railroad bridges cross over State Route 1, the existing railroad bridges would be removed, and new single-span trail overcrossings would be constructed over State Route 1 in the same general location as the existing railroad bridges. The bridge abutments constructed on either side of State Route 1 would be constructed to freight railroad standards and be positioned and sized to account for the ultimate trail configuration.
- Where the trail crosses over Valencia Creek, Soquel Drive (south) and Aptos Creek, the existing bridge structures would remain, the railroad tracks removed, and new trail constructed along the existing rail centerline.
- The existing single-span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.
- Slight modifications of the existing railroad bridge abutments are proposed to meet current seismic requirements.

Retaining Walls

Retaining walls would be constructed in the following locations:

Direction	Location (Station)	Length	Maximum Height
Trail Northbound	1037+00 – 1038+40	140 feet	6 feet
Trail Southbound	1035+25 – 1038+40	315 feet	18 feet
Trail Southbound	1040+68 – 1041+25	57 feet	5 feet

See Appendix G, Geometric Approval Drawings, for location of station numbers

Fencing

The new trail overcrossings over State Route 1 would include railings with fencing and the repurposed bridges over Aptos Creek, Valencia Creek, and Soquel Drive would have fencing added. No additional fencing is anticipated due to the railroad tracks being removed.

Removal

If all or a portion of the optional first phase of the trail is implemented, and railroad operations are reactivated, the trail along the existing railroad track alignment would need to be removed and the Ultimate Trail configuration would be built as described above. The railroad tracks would be reinstalled in their approximate existing location and the at-grade railroad crossings of Trout Gulch Road, Parade Street, and Aptos Creek Drive would be reconstructed.

Structures

- At the two locations where new trail overcrossings are constructed over State Route 1 as part of the optional first phase improvements, the trail overcrossings would be relocated to be adjacent to the existing railroad alignment, and new railroad bridges would be constructed over State Route 1 adjacent to the trail overcrossings, as described by the ultimate trail configuration. Construction of the new two-span railroad bridges over State Route 1 would require the construction of support columns in the median of State Route 1 to support the new railroad bridges.
- Repurpose bridges over Soquel Drive (south), Aptos Creek, and Valencia Creek from trail use to rail use by removing the trail deck and railing system and reconstructing railroad infrastructure.
- The trail deck and railing system over Soquel Drive (north) would be removed and replaced with a single -span railroad bridge with reconstructed railroad infrastructure.

Design Standards

Coastal Rail Trail Segment 12 would be designed as a multiuse paved path per the guidelines identified in Chapter 5 of the MBSST Network Master Plan. The design standards used for this segment of the Coastal Rail Trail follow

the MBSST guidelines and are listed under Cross Section Standards. The MBSST Network Master Plan incorporates and refers to design elements from the Class I Bikeways identified in Chapter 1000 of the Highway Design Manual.

In areas where existing constraints limit the available width for the trail to be adjacent to the railroad tracks, other alternative design standards than those listed in the MBSST Network Master Plan may be utilized for design.

Cross-Section Standards

- The paved traveled way of the Coastal Rail Trail would be a minimum of 12 feet wide but may be reduced to 10 feet in areas with existing constrained conditions.
- Shoulders would be provided on each side of the traveled way and would be 2 feet in width where possible.
- For accessibility and drainage, the cross slope of the traveled way would be between 1% and 2%.
- The shoulder cross slope would be between 2% and 5% and would angle away from the surface of the traveled way.

Horizontal Design

- The design speed for the trail would be established at 20 miles per hour and correlates to a minimum stopping sight distance of 125 feet.
- To meet a minimum stopping sight distance of 125 feet, a radius of no less than 500 feet would be used for the Coastal Rail Trail alignment where possible.
- The minimum horizontal clearance between the railroad centerline and the edge of the Coastal Rail Trail, inclusive of shoulders, is 8 feet, 6 inches.
- Where roadways are adjacent to the trail, such as Soquel Drive through Aptos Village, a minimum horizontal separation of 12 feet on straight sections and 10 feet on curves is recommended between edge of pavement of the roadway and edge of the trail. This standard would be modified at constrained locations along the corridor where necessary to maintain the absolute minimum horizontal separation. Such separation variances may include vertical separation, fence, or other barriers.

Vertical Design

- The vertical grade slope for the Coastal Rail Trail would be limited to no more than 5%.
- Vertical obstructions and signs would be 10 feet above the entire Coastal Rail Trail, except in limited situations where the vertical clearance may be reduced to 8 feet over the traveled way and 7 feet over the shoulders.

- The Coastal Rail Trail would either be constructed following closely the existing grade or on widened segments and new bridges requiring new cuts/fills and retaining walls. Minor grading of the existing ground surface in segments on existing grade is anticipated and may involve excavation of approximately 1-foot depth.

Vegetation Removal and Planting

Construction work for the Build Alternative would require removal of existing mature landscape plantings along State Route 1 and along the Coastal Rail Trail Segment 12 route. For highway construction, where proper setback requirements allow, plantings would be replaced as per Caltrans' policies, and include an automated irrigation system and a 3-year plant establishment period. The replacement planting effort would include vegetation affected by the contractor's staging, storage, and construction activities. Vegetation needed for the optional first phase trail improvements is significantly less than for the ultimate trail improvements. For trail construction, the Regional Transportation Commission could allow replanting on the trail side of the railroad tracks where right-of-way and topography allows. Offsite replanting will also be pursued.

Construction Activities

Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m. However, nighttime work and temporary closures of State Route 1, Soquel Drive, and Spreckels Drive may be necessary to avoid major disruption for tasks that could interfere with traffic or create safety hazards such as demolition of the existing railroad bridges. Detours would be required for any temporary closures of State Route 1 or local roadways. Construction activities would include excavation, drilling, dewatering, pavement demolition, bridge demolition, mass grading, concrete form work, pavement installation, storm system installation, landscaping and irrigation, sign installation, striping operations, and traffic control. Such activities would require the use of the following types of equipment: drilling rig, forklift, scissor lift, backhoe, track excavator, compactor, concrete pump, crane, bulldozer, grader, front-end loader, dump truck, jackhammer, and vibratory roller. These activities may require temporary freeway, ramp, and local street partial lane closures or full closures with possible detours.

A Transportation Management Plan would be developed as part of the project construction planning phase. The Transportation Management Plan would address potential impacts on circulation of all modes of travel (i.e., transit, bicycles, pedestrians, and vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The Transportation Management Plan would include an evaluation of potential detour impacts and would also include measures to minimize, avoid, and/or mitigate impacts on alternate routes. The Transportation Management Plan would address coordination with local

agencies for traffic through or near the construction zone. Staging areas would be located within the existing Caltrans right-of-way and within the Santa Cruz Branch Rail Line right-of-way along Coastal Rail Trail Segment 12.

Construction Schedule

Construction of the State Route 1 and Coastal Rail Trail improvements including the auxiliary lanes and Bus-on-Shoulder features is anticipated to begin in 2025 subject to availability of funds for construction and is estimated to take approximately 3 years to complete.

Demolition

Demolition work would generally comprise removal of existing bridge structures, abutments, columns, overhead sign foundations, and rails and ties; clearing and grubbing; and removal of trees, pavement, and drainage systems. Building demolition would occur where properties are acquired.

Stormwater Drainage and Treatment Facilities

The Build Alternative would include drainage system improvements and permanent stormwater treatment facilities for the State Route 1 and Coastal Rail Trail Segment 12 improvements. Hydromodification measures would be included, if needed. During construction, the contractor would be required to develop and implement a Stormwater Pollution Prevention Plan in compliance with the statewide Construction General Permit and consistent with the guidelines and procedures in Caltrans' Statewide Stormwater Management Plan. The Stormwater Pollution Prevention Plan will provide detailed, site-specific information regarding Best Management Practices to avoid and minimize water quality impacts. The project would be constructed to minimize erosion by disturbing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, providing cut and fill slopes flat enough to allow revegetation to limit erosion rates, and providing concentrated flow conveyance systems such as storm drains, ditches, and gutters.

Utilities

Existing utilities located in areas subject to construction that conflict with the proposed improvements would be relocated as needed. This is anticipated to include sanitary sewer and electric utility poles adjacent to Moosehead Drive and a gas line along the Coastal Rail Trail Segment 12 route for the ultimate trail improvements, and other utility appurtenances. One utility pole near Aptos Wharf Road would also be relocated.

Acquisitions and Temporary Construction Easements

The Build Alternative would require full or partial acquisitions for the construction of the State Route 1 (Table 1-1) and Coastal Rail Trail Segment

12 ultimate trail improvements (Table 1-2), as well as temporary easements for construction activities such as the construction of sound walls and retaining walls along State Route 1 and the Santa Cruz Branch Rail Line.

Table 1-1 lists the temporary and partial property acquisitions that would occur for the State Route 1 improvements, as well as underground and aerial easements.

Along the Santa Cruz Branch Rail Line corridor, the acquisitions shown in Table 1-2 would be needed for the construction of the proposed ultimate trail configuration of Coastal Rail Trail Segment 12. No new property acquisitions would be needed to construct the optional first phase of the Coastal Rail Trail Segment 12, but the Surface Transportation Board would have to approve railbanking the corridor. Right-of-way exhibits are in Appendix F.

Table 1-1. State Route 1 Property Acquisitions

Assessor's Parcel Number.	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement (square feet)
041-052-03	9016 Soquel Drive	329	None	None
041-052-08	9028 Soquel Drive	723	None	None
041-052-14	9012 Soquel Drive	1,757	None	None
041-052-15	9010 Soquel Drive	1,154	None	None
041-052-19	9018 Soquel Drive	1,185	None	None
041-052-20	9020 Soquel Drive	1,212	None	None
044-282-10	421 Robin Drive	522	None	None
044-282-11	414 Robin Drive	838	None	None
041-052-16	9006 Soquel Drive	1,219	None	None
042-067-15	326 Moosehead Drive	2,135	None	None
042-067-16	Moosehead Drive - Vacant	1,519	566	None
042-067-17	Moosehead Drive - Vacant	1,271	742	None
042-067-18	345 Moosehead Drive	1,260	641	None
042-071-01	345 Moosehead Drive	665	466	None
042-071-02	345 Moosehead Drive	874	314	None
042-071-03	345 Moosehead Drive	1,134	13	None
042-073-24	240 Carrera Circle	558	None	None
042-073-25	230 Carrera Circle	241	None	None
042-073-26	220 Carrera Circle	254	None	None
042-073-39	361 Moosehead Drive	259	None	None
042-071-10	351 Moosehead Drive	837	None	None
042-073-40	Carrera Circle - Vacant	1,915	None	None
039-233-12	246 Seacliff Drive	3,239	None	None
039-233-13	335 Spreckels Drive	None	None	291
042-066-21	321 Moosehead Drive	681	None	None
039-231-09	7960 Soquel Drive	None	None	3,840

Assessor's Parcel Number.	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement (square feet)
039-232-03	7992 Soquel Drive	None	None	405
042-041-48	56 Seacliff Drive	2,994	None	402

Table 1-2. Coastal Rail Trail Segment 12 Ultimate Trail Configuration Property Acquisitions (revised in the final environmental document to remove two parcels that are owned in fee by Santa Cruz Regional Transportation Commission)

Assessor's Parcel Number	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement	Aerial Easement
044-282-47	369 Sandalwood Drive	3,829	45	None	None
041-042-11	Soquel Drive - Vacant	3,317	387	None	None
041-052-16	9006 Soquel Drive	471	None	None	561
041-052-17	Soquel Drive - Vacant	6,884	2,407	None	None
044-282-48	369 Sandalwood Drive	2,732	3,407	None	None
039-241-02	Aptos Village County Park	15,007	1,219	None	1,221
041-011-41	15 Parade Street	None	177	None	None
041-011-42	10 Parade Street	None	155	None	None
041-561-04	8019 Soquel Drive	1,005	None	None	None
041-561-11	8035 Soquel Drive	None	1,670	None	None
039-231-09	7960 Soquel Drive	59	None	None	None
039-232-01	7996 Soquel Drive	1,127	1,646	None	None
039-232-02	7994 Soquel Drive	312	385	None	None
039-232-03	7992 Soquel Drive	1,168	1,331	None	None
039-233-10	347 Spreckels Drive	267	None	None	None
039-471-10	7957 Soquel Drive	7,331	None	None	None
041-561-04	8019 Soquel Drive	8,109	None	None	None
042-011-06	280 State Park Drive	9,954	None	None	None

Standard Measures

This project contains a number of standardized project measures that are used on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections in Chapter 2.

Cultural Resources

- **Standard Measure CR-1:** If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be stopped in that area until a qualified archaeologist can assess the significance of the find.

Hydrology

- **Standard Measure HY-1:** Coordination with local, state, and federal water resources and floodplain management agencies would be conducted as necessary during all aspects of the proposed project.

Water Quality and Stormwater Runoff

- **Standard Measure WQ-1:** Comply with the conditions of the Construction General Permit, including the preparation and implementation of a Stormwater Pollution Prevention Plan.
- **Standard Measure WQ-2:** Implement temporary construction site Best Management Practices.
- **Standard Measure WQ-3:** Dewatering activities would comply with the Caltrans Standard Specifications, and, if required, a separate dewatering permit would be obtained before construction starts.
- **Standard Measure WQ-4:** Implement the California Office of Emergency Services' Hazardous Material Incident Contingency Plan, which provides a program for response to spills involving hazardous materials.
- **Standard Measure WQ-5:** Implement permanent stormwater treatment measures and design pollution prevention Best Management Practices.
- **Standard Measure WQ-6:** Implement treatment control Best Management Practices consistent with Caltrans' Municipal Separate Storm Sewer System permit.

Air Quality and Greenhouse Gases

- **Standard Measure AQ-1:** The construction contractor shall apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.

- **Standard Measure AQ-2:** The construction contractor shall spread soil binder on any unpaved roads used for construction purposes and on all project construction parking areas.
- **Standard Measure AQ-3:** The construction contractor shall wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.
- **Standard Measure AQ-4:** The construction contractor shall properly tune and maintain construction equipment and vehicles.
- **Standard Measure AQ-5:** The construction contractor shall use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- **Standard Measure AQ-6:** The construction contractor shall develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts on existing communities.
- **Standard Measure AQ-7:** The construction contractor shall locate equipment and material storage sites as far away from residential and park uses as practical. Construction areas shall be kept clean and orderly.
- **Standard Measure AQ-8:** All on-road and off-road diesel equipment shall not idle for more than 5 minutes. The contractor shall post signs in the designated queuing areas and/or job sites to remind drivers and operators of the 5-minute idling limit. For non-diesel equipment, idling time for lane closures during construction shall be restricted to 10 minutes in each direction.
- **Standard Measure AQ-9:** The construction contractor shall use track-out reduction measures, such as gravel pads, at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- **Standard Measure AQ-10:** The construction contractor shall cover all transported loads of soils and wet materials before transport or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce particulate matter (10 micrometers or smaller) and deposition of particulate matter during transportation.
- **Standard Measure AQ-11:** The construction contractor shall remove dust and mud that are deposited on paved, public roads due to construction activities and traffic to decrease particulate matter.
- **Standard Measure AQ-12:** The construction contractor shall route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- **Standard Measure AQ-13:** The construction contractor shall install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate matter in the area.

Biological Resources

- **Standard Measure BIO-1:** Protect migratory and nongame birds, their occupied nests, and their eggs by avoiding construction during the nesting season, stopping all work within a 100-foot radius of a discovery, notifying the project engineer, and implementing protective measures.
- **Standard Measure BIO-2:** Contractor-supplied biologists would be used to monitor regulated species, ensure construction activities comply with any applicable permits, licenses, agreements, and certifications, and prepare notifications and reports.

Transportation Demand Management and Transportation System Management Alternatives

The proposed project includes a number of transportation demand management and transportation system management features, including auxiliary lanes and Bus-on-Shoulder operations along the project corridor, a new pedestrian and bicycle overcrossing at State Route 1 at two locations and adjacent to the existing railroad bridges at Aptos Creek and Valencia Creek/Soquel Drive, and complete streets improvement that would add connectivity for local residents. Therefore, a separate transportation demand management or transportation system management alternative is not necessary.

1.4 Project Alternatives

1.4.1 No-Build (No-Action) Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or Bus-on-Shoulder features on State Route 1 within the project area, and Coastal Rail Trail Segment 12 would not be constructed. Delays on State Route 1 and cut through traffic would continue and overall improvements to operations and auxiliary lanes would not occur. There would be less bicycle and pedestrian connections along with fewer incentives to increase transit service on State Route 1. The existing transportation facilities within the project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on State Route 1 and other segments of the Coastal Rail Trail. Routine maintenance activities would continue.

1.5 Comparison of Alternatives

After comparing and weighing the benefits and impacts of all feasible alternatives, the project development team, which includes Caltrans and other relevant stakeholders, has identified the Build Alternative as the preferred alternative, subject to public review. Final identification of a preferred alternative would occur after the public review and comment period.

After the public circulation period, all comments would be considered, and Caltrans would select a preferred alternative and make the final determination

of the project's effect on the environment. Under CEQA, Caltrans would certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that would not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered before project approval. Caltrans would then file a Notice of Determination with the State Clearinghouse that would identify whether the project would have significant impacts if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. Similarly, if Caltrans, as assigned by the Federal Highway Administration, determines NEPA action does not significantly affect the environment, Caltrans would issue a finding of no significant impact. If it is determined that the project is likely to have a significant effect on the environment, an environmental impact statement would be prepared.

1.6 Identification of a Preferred Alternative

After the public comment period, all comments were considered, the Project Development Team identified the Build Alternative as the preferred alternative for the project. The preferred alternative is documented in the project report and will be approved by Caltrans. The Build Alternative was identified as the preferred alternative because it addresses the project purpose and need. The Build Alternative is also the only practicable alternative. The No-Build Alternative would not reduce delay or improve system reliability and safety, would not improve traffic operational movements or local circulation, would not promote the use of alternative transportation modes or enhance bicycle and pedestrian connectivity and safety. Therefore, the No-Build Alternative would not meet the project purpose and need. Other alternatives were considered but were not carried forward in this analysis because they would not meet the project objectives and would not reduce impacts. In some cases, the alternatives would result in additional impacts compared with the Build Alternative.

1.7 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Impact Report/Environmental Assessment (EIR/EA)

During the project development process and identification of feasible and reasonable alternatives, and through coordination between Santa Cruz Regional Transportation Commission and the project development team, several alternatives were considered but eliminated from further discussion. Three alignment alternatives were considered specifically for the Coastal Rail Trail Segment 12, including an Inland Alternative (i.e., the current Build Alternative), a Coastal Alignment Alternative, and a Hybrid Alignment Alternative. The three different trail alignment alternatives were compared to a

list of evaluation criteria in order to select the preferred alignment. The evaluation criteria included whether or not the alignment alternative would satisfy the purpose and need of the project (i.e., project objectives), as well as comparing safety, access, constructability, cost efficiency, environmental impacts, and right of way impacts. The alignment alternatives were scored based on the results of the evaluation criteria analysis, which are described in more detail below. Ultimately the Inland Alignment Alternative scored significantly higher than the other two alternatives.

The State Route 1 corridor is geographically limited. Nevertheless, an alternative to widen the outside of the highway was considered by the project development team, as well as alternatives to several aspects of the widening including the Aptos Creek Bridge replacement and Bus-on-Shoulder component. These alternatives considered and dismissed are discussed in more detail below.

1.7.1 Rail Trail Coastal Alignment Alternative

During project development a Rail Trail Coastal Alignment Alternative was considered. Under the Rail Trail Coastal Alignment Alternative, Coastal Rail Trail Segment 12 would be located on the coastal side of the railroad tracks from Rio Del Mar Boulevard to Aptos Creek Road. The trail segment would include a grade crossing of the railroad tracks at Aptos Creek Road. From Aptos Creek Road to State Park Drive this alternative would be identical to the Build Alternative. The southern terminus of the rail trail segment would be at Rio Del Mar Boulevard, and the trail would have an at-grade connection to Aptos Beach Drive. The trail segment would terminate just north of the existing Rio Del Mar overcrossing above the railroad right-of-way. Access from the trail segment to Rio Del Mar Boulevard would be via Aptos Beach Drive. Other features are unique to this alternative. This alternative would include a retaining wall from Rio Del Mar Boulevard to the southern railroad bridge over State Route 1. The retaining wall would range in height from 24 feet at Rio Del Mar Boulevard to 8 feet at the southern railroad bridge over State Route 1.

This alternative provided less access than the Inland Alignment and Hybrid Alignment alternatives and would only provide access to Aptos Village. Due to access constraints from the coastal side of the railroad tracks, this alternative would provide less bicycle and pedestrian connectivity and less enhancement of alternative modes of travel. Due to property acquisitions and retaining walls, it would not reduce environmental impacts in comparison with the Build Alternative. Furthermore, the Trout Gulch Road to Rio Del Mar Boulevard segment on the coastal side would not provide logical termini. It would require a ramp up to the residential area on Aptos Beach Drive, additional retaining walls, and would end on a road with no bicycle and pedestrian access. In terms of safety, this alternative placed the trail next to high-speed vehicular traffic along Soquel Drive. In terms of environmental impacts, this alternative has the most impacts to floodplains and hydrology due to the encroachment

that would be required in Aptos Creek. There would be more substantial visual impacts compared to the Inland Alignment Alternative due to tall retaining walls that would block views for several residents. Several properties abut this alignment and would be impacted by the change of use of the railroad right-of-way, and there would be five parcels impacted including a full take of one property. This alternative also had the highest construction cost due to the complexity of the Aptos Creek overcrossing and tall retaining walls. This alternative was eliminated from further discussion because it had more environmental and right-of-way impacts, and it would not feasibly attain most of the basic objectives of the project, as it provided the fewest access and safety benefits to bicycles and pedestrians.

1.7.2 Rail Trail Hybrid Alignment Alternative

Under the Rail Trail Hybrid Alignment, Coastal Rail Trail Segment 12 would be located on the coastal side of the railroad tracks from Rio Del Mar Boulevard to Trout Gulch Road. The trail segment would include a grade crossing of the railroad tracks at Trout Gulch Road. From Trout Gulch Road to State Park Drive this alignment would be identical to the Rail Trail Inland Alignment. The southern terminus of the rail trail segment would be at Rio Del Mar Boulevard, and the trail would have a ramp up to an at-grade connection to Aptos Beach Drive. The trail segment would terminate just north of the existing Rio Del Mar overcrossing above the railroad right-of-way. Access from the trail segment to Rio Del Mar would be near the intersection of Aptos Beach Drive and Rio Del Mar Boulevard. A variant of this alignment with crossing at Aptos Creek Road was also considered but rejected because of the congested roadway section in this area.

This alternative provided more access than the Coastal Alignment Alternative, but less access opportunities than the Inland Alignment Alternative (i.e., the Build Alternative). In terms of safety, this alternative placed the trail next to high-speed vehicular traffic along Soquel Drive similar to the Coastal alignment Alternative, whereas the Inland Alignment Alternative places the trail away from vehicular traffic. This alternative also had constructability issues at the Valencia Creek bridge due to its proximity to Soquel Drive. There would be more substantial visual impacts compared to the Inland Alignment Alternative due to tall retaining walls that would block views for several residents. Several properties abut this alignment and would be impacted by the change of use of the railroad right-of-way, and there would be three parcels impacted. The construction cost is lower than the Coastal Alignment Alternative but higher than the Inland Alignment Alternative. After review, this alternative was rejected. Because of limited available width, this option resulted in a sub-standard roadway and trail width that was considered unsafe. Portions of the trail would be located near high-speed traffic along Soquel Drive, and it would require tall retaining walls that would impact views, and result in more property impacts.

1.7.3 Bus-on-Shoulder Only Alternative

A Bus-on-Shoulder only alternative was considered, in which only Bus-on-Shoulder improvements would be implemented and auxiliary lanes would not be added. For this alternative, the bus could use the outside shoulder between and through the interchanges. This alternative would require the outside shoulder at and between the interchanges to be reconstructed with a new structural section and widened to 12 feet. For southbound State Route 1 between the Freedom Boulevard and Rio Del Mar Boulevard interchanges, the outside shoulder widening would occur into the Valencia Lagoon environmentally sensitive area. The transition zone across the off/on-ramps is more problematic as transit vehicles would need to enter or exit the outside shoulder between interchanges by driving across the exit lane to the off-ramp or entry lane from the on-ramp as no auxiliary lanes are provided. This alternative was reviewed and rejected because the construction cost is comparable to the construction cost of auxiliary lanes, but the improvement does not attain most of the basic objectives of the project because the improvement does not substantially reduce delay along the corridor. Furthermore, the existing railroad bridges over State Route 1 would still need to be replaced and the Aptos Creek Bridge widened with similar temporary impacts during construction along Aptos Creek and Valencia Creek passing under State Route 1. It would also be inconsistent with Bus-on-Shoulder improvements to be constructed just to the north between 41st Avenue and Soquel Avenue and between Bay Avenue/Porter Street and State Park Drive that include auxiliary lanes between the interchanges.

1.7.4 Outside Widening for Auxiliary Lanes

An alternative to leave the number 1 and number 2 lanes as is and widen to the outside for the proposed auxiliary lane was considered. This alternative was reviewed and rejected for its substantial impacts on adjacent creeks, trees, embankment slopes, and environmentally sensitive areas adjacent to southbound State Route 1 between the Freedom Boulevard and Rio Del Mar Boulevard interchanges, including Valencia Lagoon, which is a known occupied habitat for the Federally listed and State fully-protected Santa Cruz long-toed salamander. Any work in this lagoon would result in take of this species. This alternative would also have substantial right-of-way impacts compared to the Build Alternative.

1.7.5 Aptos Creek Bridge Replacement

An Aptos Creek bridge replacement alternative was considered, to replace the existing Aptos Creek Bridge along State Route 1 with a longer and wider bridge to provide standard width for the auxiliary lanes. This alternative was reviewed and rejected for its impacts on the adjacent creeks and embankment slopes. Many alignment adjustments would be needed for vertical clearance over Spreckels Drive. It was also rejected for its substantial cost, and its lack of standard stopping sight distance at the vertical curve

location where State Route 1 crosses Aptos Creek. The Valencia Creek Arch Culvert crossing under SR 1 would also be impacted due to the longer span bridge requiring modification or replacement. Ultimately this alternative was dismissed from further consideration due to the biological and safety impacts compared to the Build Alternative, which would both reduce impacts and cost less to construct.

1.8 Permits and Approvals Needed

Table 1-3 lists the permits, licenses, agreements, and certifications required for project construction (revised in the final environmental document to add additional permits/approvals).

Table 1-3. Permits and Approvals

Agency	Permits, Licenses, Agreements, and Certifications	Status
U.S. Fish and Wildlife Service	Coordination regarding threatened and endangered species. Section 7 formal consultation and Biological Opinion for Central California coast Steelhead and Tidewater Goby	To be obtained during the project design phase.
National Marine Fisheries Service	Coordination regarding threatened and endangered species. Section 7 formal consultation and Biological Opinion for Central California coast Steelhead and Tidewater Goby	To be obtained before construction starts.
U.S. Army Corps of Engineers	Section 404 Permit	To be obtained before construction starts.
California Department of Fish and Wildlife	Section 1602 Department of Fish and Game Code Streambed Alteration Agreement	To be obtained prior to construction starts.
California Coastal Commission	Coastal Development Permit	To be obtained before construction starts.
State Historic Preservation Officer	National Historic Preservation Act Section 106 Concurrence	To be obtained before approval of the final environmental document.
State Water Resources Control Board	Construction General National Pollutant Discharge Elimination System Permit requirements through Caltrans National Pollutant Discharge Elimination System Permit	To be obtained before construction starts.
Air Quality Management District	Formal notification prior to construction	To be obtained before construction starts.
Regional Water Quality Control Board	Section 401 Water Quality Certification and coverage under the existing Caltrans National Pollutant Discharge Elimination System Permit (Order Number 99-06-DWQ)	To be obtained before construction starts.

Agency	Permits, Licenses, Agreements, and Certifications	Status
	Construction General National Pollutant Discharge Elimination System Permit requirements through Caltrans National Pollutant Discharge Elimination System Permit National Pollutant Discharge Elimination System Municipal Separate Storm Sewer Systems General Permit	
Santa Cruz County Planning Department	Coastal Development Permit for development within the Coastal Zone within the Santa Cruz County Local Coastal Program area Determination of any need to revise the Floodplain Map	To be obtained before construction starts.
Federal Surface Transportation Board	Permit for removal of the rail line and related features	To be obtained before construction starts.
California Public Utilities Commission	Permit for removal of the rail line and related features	To be obtained before construction starts.
California Transportation Commission	Approval of project funding for each phase of project development	To be obtained before construction starts



Figure 1-1. Project Vicinity

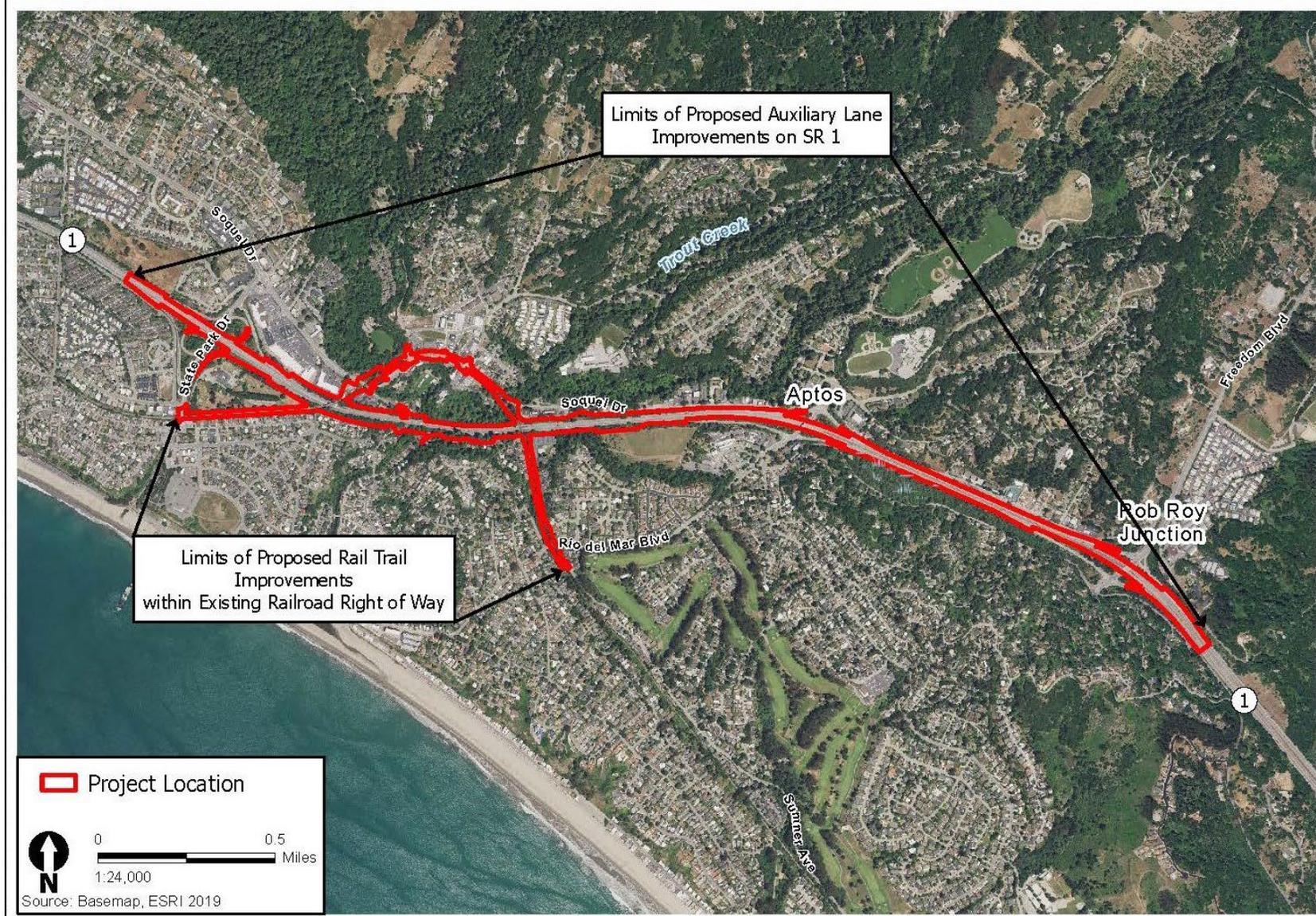


Figure 1-2. Project Location

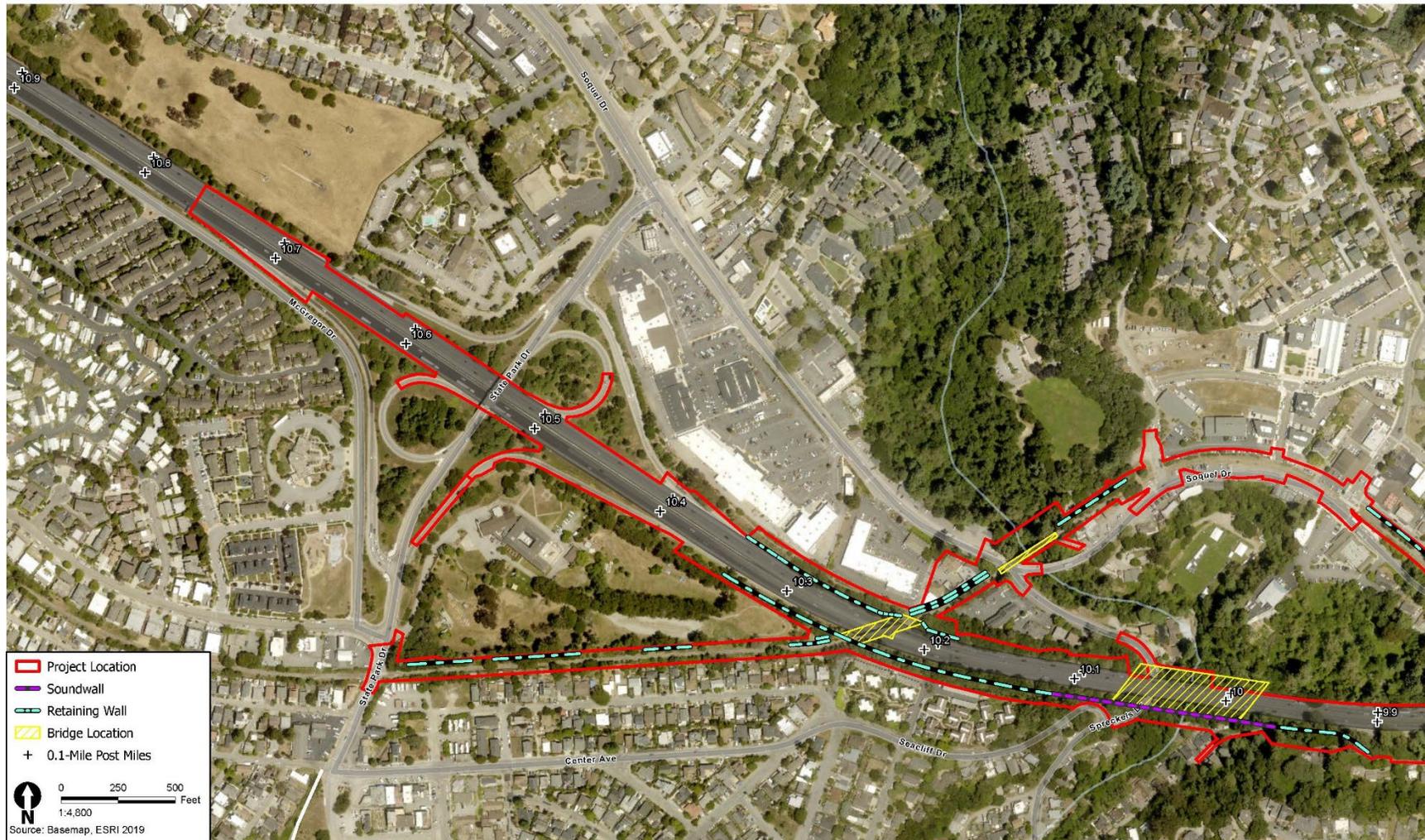


Figure 1-3a. Project Components, Sheet 1 of 3

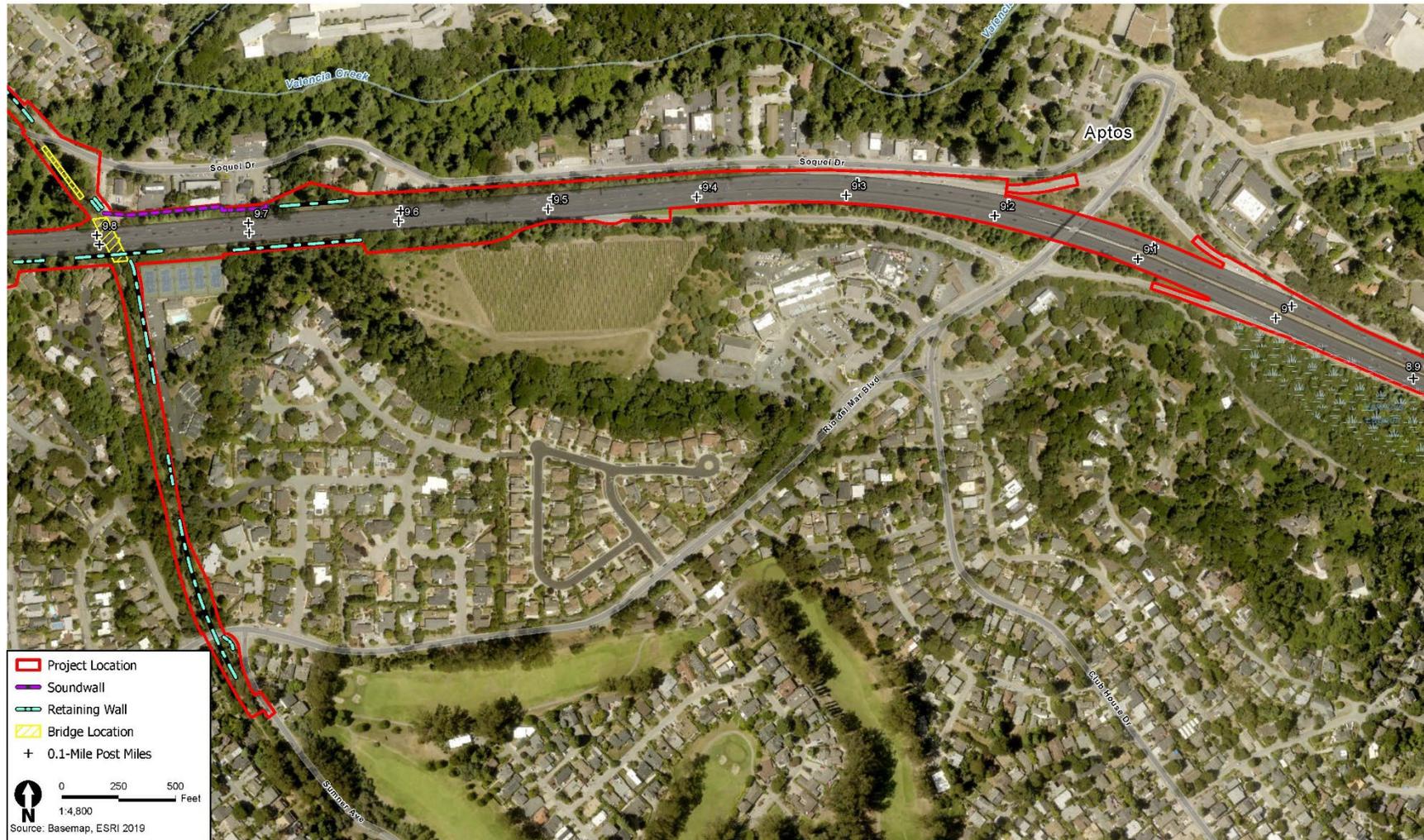


Figure 1-3b. Project Components, Sheet 2 of 3

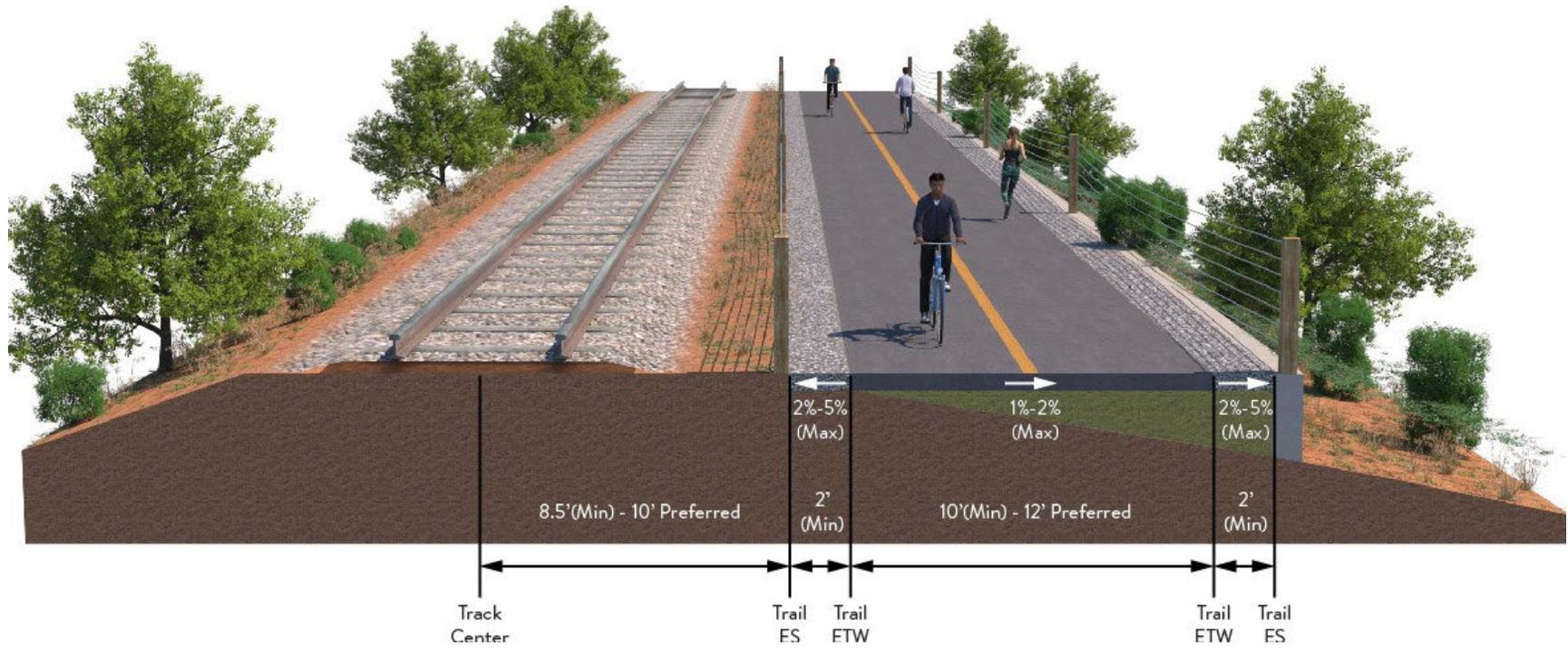


Figure 1-4. Ultimate Trail Configuration

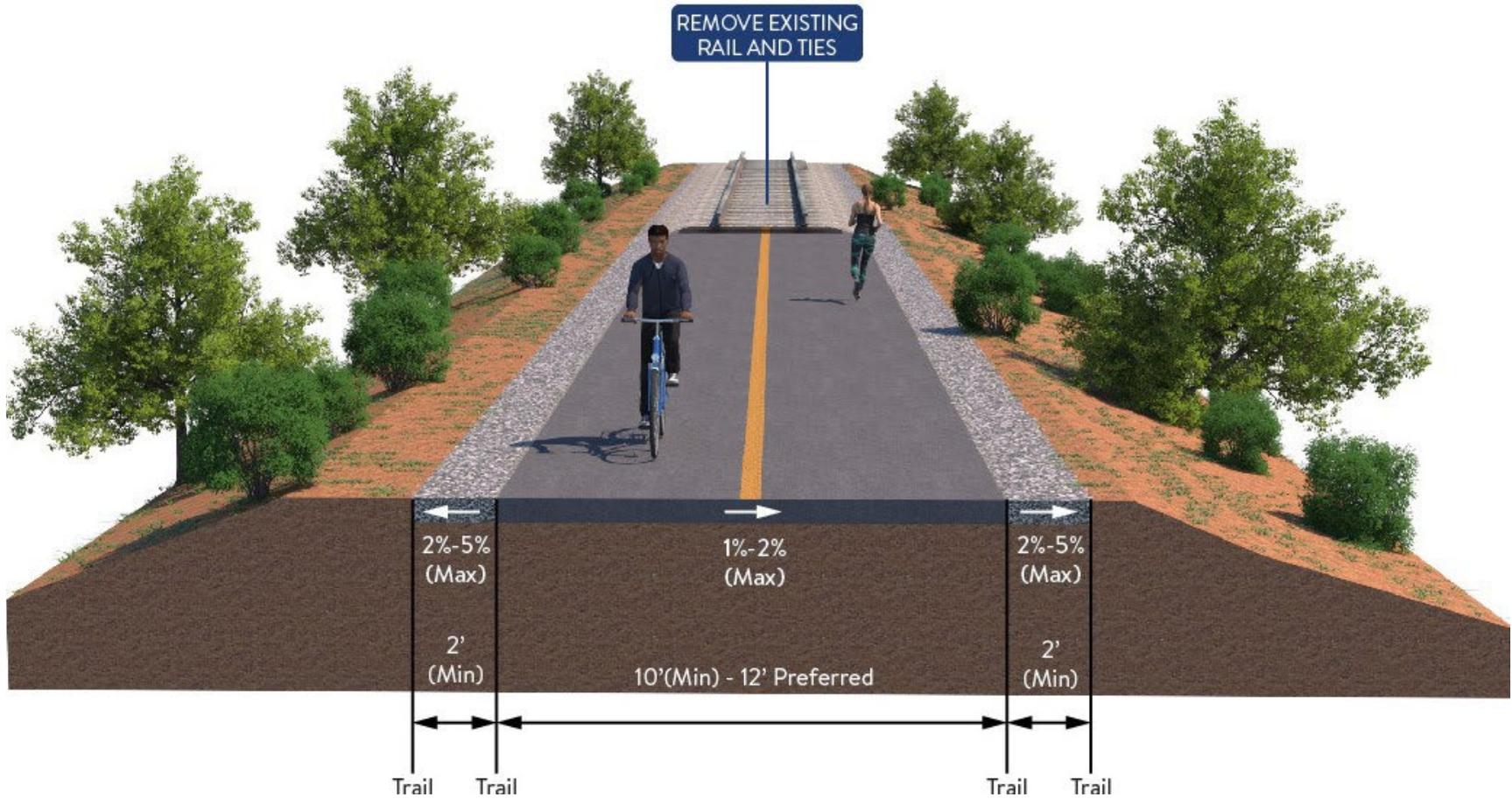


Figure 1-5. Optional First Phase

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Chapter 2 **Affected Environment; Environmental Consequences; and Avoidance, Minimization, and/or Mitigation Measures**

This chapter explains the project-related impacts on the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the project; potential impacts from each of the alternatives; and proposed avoidance, minimization, and/or mitigation measures. Any indirect impacts are included in the general impacts analysis and discussions that follow.

Topics Considered but Determined Not to be Relevant

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

Existing and Future Land Use

The project area is within the County of Santa Cruz and the County of Santa Cruz Aptos Planning Area. It is entirely built out, primarily with residential uses, with urban open space in the area south of the railroad and north of State Route 1, where Aptos and Valencia creeks converge (County of Santa Cruz 1994). The proposed project would not alter the existing surrounding land use or zoning patterns or affect existing or future uses. Therefore, no impact would occur, and this topic is not discussed further. The project would require some temporary construction easements and new right-of-way/property acquisitions along the project limits (Tables 1-1 and 1-2). These temporary and permanent acquisitions are discussed in detail in Section 2.1-4.

Consistency with State, Regional and Local Plans and Programs

The proposed project would be subject to the County of Santa Cruz General Plan and Local Coastal Program (County of Santa Cruz 1994), Aptos Village Plan (Santa Cruz County 2010), 2045 Santa Cruz County Regional Transportation Plan (Santa Cruz County Regional Transportation Commission 2022), and Santa Cruz County Bicycle Plan (County of Santa Cruz 2011). The project would be consistent with all applicable goals and policies contained in local and regional planning documents (Community Impact Assessment, September 2022). Because the proposed project would reduce delay, the objectives are consistent with adopted local planning goals and policies for improving the existing State Route 1 corridor.

Wild and Scenic Rivers

According to the National Wild and Scenic Rivers System, there are no wild and scenic rivers in the project area. (National Wild and Scenic Rivers System 2022). The proposed project would not affect designated Wild and Scenic rivers.

Farmlands/Timberlands

There is one agricultural area in use in the project study area consisting of an orchard/vineyard located just south of the southbound State Route 1 Rio Del Mar Boulevard off-ramp. The orchard/vineyard is not identified as prime farmland, unique farmland, or farmland of statewide importance (California Department of Conservation, 2016). All improvements associated with the proposed project would be constructed and operated within existing highway right-of-way in the vicinity of this orchard/vineyard and no temporary or permanent effects to the operation of this land would result from the proposed project.

The project area is mostly comprised of urban and built-up land with small portions of forested areas on the northern and southern edges of State Route 1. These forested areas serve as vegetation buffers between State Route 1 and adjacent land uses and none serve as active lumber production or other timberland uses. Accordingly, no further discussion of Farmlands/Timberlands is required.

Mineral Resources

Much of County of Santa Cruz is designated as Mineral Resource Zone 1. However, the project involves work within the existing, already disturbed right-of-way, and the project would not impede the extraction of any known mineral resources. This topic is not discussed further.

Environmental Justice

Caltrans prepared a Community Impact Assessment in September 2022 that included an analysis of minority and low-income populations. Census data shows that the study area contains minority populations and poverty levels lower than the county as a whole. Impacts related to construction and operation of the proposed project borne by residents of minority or low-income populations would be no greater than impacts borne by all populations within the project area. Residents in the project area would benefit from reduced delay and enhanced accessibility. Construction-related impacts from noise, traffic delays, and air quality emissions would be temporary and would be spread out over the entire corridor, not concentrated in any one place. No minority or low-income populations have been identified that would be adversely affected by the proposed project (Caltrans 2022). Therefore, this project is not subject to the provisions of Executive Order 12898. This topic is not discussed further.

Standard Measures and Avoidance, Minimization, and Mitigation Measures

In each of the sections below, Avoidance, Minimization, and Mitigation Measures are included where necessary. Avoidance measures avoid the impact altogether by not taking a certain action or parts of an action. Minimization measures minimize impacts by limiting the degree or magnitude of the action and its implementation. Avoidance and minimization measures are used where there are no significant impacts. Mitigation Measures, which can include enhancement and compensation, are designed to reduce a project's significant environmental impacts. Standard measures are part of the project and are listed in Chapter 1.

References

- California Department of Conservation. 2016. California Important Farmland Finder. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed May 2022.
- California Department of Transportation. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project, Community Impact Assessment. September.
- County of Santa Cruz. 1994. 1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Adopted May 24. Available at: <https://www.sccoplanning.com/planninghome/sustainabilityplanning/generalplan.aspx>. Accessed May 2, 2022.
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- Santa Cruz County Regional Transportation Commission. 2022. 2045 Regional Transportation Plan for Santa Cruz County. Final-June 2022. Available at: <https://sccrtc.org/wp-content/uploads/2022/06/Final%202045%20RTP.pdf>. Accessed February 20, 2023.

2.1 Human Environment

2.1.1 Coastal Zone

Regulatory Setting

This project has the potential to affect resources protected by the Coastal Zone Management Act of 1972. The Coastal Zone Management Act is the primary federal law enacted to preserve and protect coastal resources. The Coastal Zone Management Act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the Coastal Zone Management Act. They include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive habitat areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act. Pursuant to the Coastal Zone Management Act and due to federal funding for the project, a Federal Consistency Certification from the California Coastal Commission will be required for this project. The Federal Consistency Certification process will be initiated prior to the final environmental document and will be completed to the maximum extent possible during NEPA process.

Just as the federal Coastal Zone Management Act delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments to enact their own local coastal programs. This project is subject to the County of Santa Cruz's 1984 General Plan/Local Coastal Program and associated Coastal Zoning Ordinance. A portion of the project is located within the Seacliff Village Plan (County of Santa Cruz 2016) which is also part of the County's Local Coastal Program. Local Coastal Programs contain policies for development and protection of coastal resources in their jurisdiction consistent with the California Coastal Act and the Coastal Zoning Ordinance contains development standards to ensure consistency with the Local Coastal Program and California Coastal Act.

Affected Environment

This section was prepared using information from the Community Impact Assessment prepared by the California Department of Transportation

(Caltrans) in September 2022 and the Natural Environment Study prepared by SWCA Environmental Consultants in September 2022.

The entire segment of State Route 1 between Freedom Boulevard and State Park Drive lies within the coastal zone. The portion of Coastal Rail Trail Segment 12 located south of the northern (inland) right-of-way limits of State Route 1 is also within the coastal zone. Significant coastal resources, including Environmentally Sensitive Habitat Areas, include Aptos Creek, Valencia Lagoon, Valencia Channel, freshwater marsh/riverine habitat, and riparian forest. Valencia Lagoon and Valencia Channel are located on the south side of State Route 1, between Freedom Boulevard and Rio Del Mar Boulevard. Aptos Creek conveys perennial flows, draining an area of approximately 21 square miles to Monterey Bay. Valencia Channel is hydrologically connected to the Valencia Lagoon, and both contain riverine, freshwater marsh, scrub-shrub wetland, and riparian forest habitats. Freshwater marsh/riverine habitat is primarily located within Valencia Channel and Aptos Creek. Riparian forest is located between the Union Pacific Railroad tracks and Spreckels Drive and in pockets surrounding State Route 1 throughout the project. The coastal zone boundary is shown on Figure 2-1 (revised in the final environmental document to clarify that the entire coastal zone is also the Commission’s appeal jurisdiction).

Environmental Consequences

Table 2-1 evaluates whether the proposed project is consistent with relevant policies from the local coastal program of the County of Santa Cruz as well as the California Coastal Act (revised in the final environmental document to include discussion of additional policies related to public access).

Table 2-1. Local Coastal Program Consistency Analysis, County of Santa Cruz 1994 General Plan and Local Coastal Program

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>Policy 5.10.2: Development within visual resources. Recognize that visual resources of Santa Cruz County possess diverse characteristics and that the resources worthy of protection may include, but are not limited to, ocean views, agricultural fields, wooded forests, open meadows, and mountain hillside views. Require projects to be evaluated against the context of their unique environment and regulate structure height, setbacks and</p>	<p>The project area is located within the Urban Services Area as designated in the General Plan/Local Coastal Plan. The Visual Impact Assessment prepared in June 2022 for the proposed project identified visual resources in the project area, including mature trees adjacent to State Route 1 and the Santa Cruz Branch Rail Line right-of-way and mountain hillside views. State Route 1 is not a state-designated scenic highway but is recognized in the County of</p>	<p>The No-Build Alternative would be consistent with this policy because it would not result in development within visual resources or modify views of surrounding visual resources.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>design to protect these resources consistent with the objectives and policies of this section. Require discretionary review for all development within the visual resource area of State Route 1, outside of the Urban/Rural boundary, as designated on the General Plan/Local Coastal Program Visual Resources Map and apply the design criteria of Section 13.20.130 of the County's zoning ordinance to such development;</p> <p>Policy 5.10.3: Protection of public vistas. Protect significant public vistas as described in policy 5.10.2 from all publicly used roads and vista points by minimizing disruption of landform and aesthetic character caused by grading operations, timber harvests, utility wires and poles, signs, inappropriate landscaping and structure design. Provide necessary landscaping to screen development which is unavoidably sited within these vistas;</p> <p>Policy 5.10.12: Development visible from urban scenic roads. In the viewsheds of urban scenic roads, require new discretionary development to improve the visual quality through siting, architectural design, landscaping, and appropriate signage. (See policies 5.10.18, 5.10.19 and 5.10.20); and</p> <p>Policy 5.10.13: Landscaping requirements. All grading and land disturbance projects visible from scenic roads shall conform to the following visual mitigation conditions: (a) Blend contours of the finished surface with the adjacent natural terrain and landscape to achieve a smooth</p>	<p>Santa Cruz General Plan as a local scenic roadway. The County of Santa Cruz General Plan and Local Coastal Program Policy 5.10.2 require a review of projects for visual impacts. The zoning ordinance states that development, including walls, should be sited and designed so that it does not block or significantly affect significant public views and scenic character adversely. Consistent with Policy 5.10.2, the Visual Impact Assessment evaluated the proposed project against the context of its unique environment and incorporates design features to protect the resources described above. The project would not block or substantially affect scenic public views. Visual impacts would result from the removal of mature vegetation for the construction of sound/retaining walls and the widening of State Route 1 and the Aptos Creek Bridge. Avoidance, minimization, or mitigation measures would protect the identified visual resources, including preserving as much existing vegetation in the corridor as feasible; applying aesthetic treatments to sound walls and retaining walls; and including trees that would become skyline trees in the planting palette to reduce the scale of the new highway elements. Therefore, the Build Alternative would be consistent with Policy 5.10.2, as well as Policies 5.10.3, 5.10.12, and 5.10.13.</p>	

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>transition and natural appearance; and (b) Incorporate only characteristic or indigenous plant species appropriate for the area.</p>		
<p>Policy 5.10.4: Preserving natural buffers. Preserve the vegetation and landform of natural wooded hillsides which serve as a backdrop for new development. Also comply with policy 8.6.6 regarding protection of ridgetops and natural landforms.</p>	<p>The proposed project would require the removal of mature trees adjacent to State Route 1 and the Santa Cruz Branch Rail Line but would not modify ridgetops. Some slopes immediately adjacent to State Route 1 and the Santa Cruz Branch Rail Line would require grading and construction of retaining walls; however, impacts on hillsides would be limited to areas along existing transportation corridors. During final design, the proposed project would develop aesthetic treatments for retaining walls and preserve existing natural vegetation that buffers adjacent development from State Route 1 to the extent feasible. Where existing trees would be removed, they would be replaced at various ratios, depending on the species of tree. For example, any coast live oak tree that is removed will be replaced at a 10 to 1 ratio and any removal of riparian trees will be offset by a replacement ratio as determined by the California Department of Fish and Wildlife in Section 1602 Streambed/Lakebed Alteration Agreement requirements. The following additional avoidance, minimization, or mitigation measures would also be implemented: survey exact locations for trees and include in the plan set; protect the drip zone of isolated trees and provide temporary fencing; and include trees that would become skyline trees in the planting palette to reduce the scale of the new highway elements. With the incorporation of these measures,</p>	<p>The No-Build Alternative would be consistent with this policy because it would not result in adverse impacts on natural buffers, vegetation, or landforms.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	the project would be consistent with Policy 5.10.4.	
Policy 5.10.6: Where public ocean vistas exist, require that these vistas be retained to the maximum extent possible as a condition of approval for any new development.	The proposed project would be consistent with this policy because it would not obstruct public ocean vistas.	The No-Build Alternative would be consistent with this policy because it would not obstruct public ocean vistas.
Policy 5.10.8: Significant tree removal ordinance. Maintain the standards in the County's existing ordinance which regulates the removal of significant trees and other major vegetation in the Coastal Zone, and provide appropriate protection for significant trees and other major vegetation in areas of the County located within the Urban Service Line.	Within the County of Santa Cruz jurisdiction, "significant" trees are identified as single-trunk trees with 20-inch diameter at breast height or greater, clumps with more than four trunks of 12-inch diameter at breast height each, and all trees in a sensitive habitat defined in Chapter 16.32 of the Santa Cruz County Code. The proposed project would maintain the standards in the County's tree removal ordinance. Consistent with Policy 5.10.8, during final design, the project would identify significant trees and other major vegetation in the coastal zone to be protected in place, to the extent feasible. Where it is determined necessary to remove significant trees, the tree removal will be consistent with Finding F of Section 16.34.060 of the tree removal ordinance, for tree removal in conjunction with the project's Coastal Development Permit to allow Caltrans and the Santa Cruz County Regional Transportation Commission the transportation use of their respective rights-of-way, in accordance with the transportation use designation of the Coastal Land Use Plan. Where existing trees would be removed, they would be replaced at various ratios, depending on the species of tree. For example, any coast live oak county significant tree that is removed will be replaced at a 10 to 1 ratio and any removal of riparian trees will be offset by a replacement	The No-Build Alternative would be consistent with this policy because it would not require removal of trees or other major vegetation within the coastal zone.

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	ratio as determined by the California Department of Fish and Wildlife in Section 1602 Streambed/Lakebed Alteration Agreement requirements. With the incorporation of these measures, the project would be consistent with Policy 5.10.8.	
<p>Policy 5.1.4: Protection of sensitive habitats. Implement the protection of sensitive habitats by maintaining the existing Sensitive Habitat Protection ordinance. The ordinance identifies sensitive habitats, determines the uses which are allowed in and adjacent to sensitive habitats, and specifies required performance standards for land in or adjacent to these areas. Any amendments to this ordinance shall require a finding that sensitive habitats shall be afforded equal or greater protection by the amended language.</p>	<p>The Natural Environment Study (2022) prepared for the project identifies impacts on areas that may be considered sensitive habitat areas under the Local Coastal Program, which are immediately adjacent to the existing transportation infrastructure. These impact areas include: 0.562 acre of temporary and 0.061 acre of permanent impacts on coastal zone riparian non-wetlands, 0.135 acre of temporary impacts on coastal zone stream, totaling 0.697 acre of temporary impact and 0.061 acre of permanent impact on coastal zone riparian non-wetlands. Additional impacts include 1.564 acres of temporary impact and 1.019 acres of permanent impact on oak woodlands (canopy coverage). The Santa Cruz County Code Sensitive Habitat Ordinance (Chapter 16.32) includes various conditions that would be enacted for permit approval; however, Section 16.32.100 provides an exception to the standards in Section 16.32.090—specifically, if a road improvement along an existing facility is necessary to protect the public welfare, health, and safety, an exception can be granted upon approval of the environmental coordinator following a biotic review pursuant to Santa Cruz County Code Section 16.32.070. The proposed project, which would provide auxiliary lanes and Bus-on-Shoulder facilities on State Route 1, a primary route that</p>	<p>The No-Build Alternative would be consistent with this policy because no impacts on sensitive habitats would occur</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	<p>connects the southern and central areas of Santa Cruz County, is necessary to protect the public welfare, health, and safety along the only continuous commuter route that links Watsonville, Capitola, Aptos, Cabrillo College, Santa Cruz, and the University of California. Because the proposed project has the potential to result in temporary and permanent impacts on sensitive habitats, Caltrans has addressed requirements of the Sensitive Habitat Ordinance in the project's Natural Environment Study, which recommends avoidance, minimization, or mitigation measures to address the impacts to sensitive habitat areas, including restoration or compensatory mitigation for any area that is a degraded sensitive habitat or has caused or is causing the degradation of a sensitive habitat commensurate with the scale of the proposed transportation improvements. As described in the Natural Environment Study, the amount of riparian non-wetland is minimal. Because these small areas of land are immediately adjacent to an existing major highway, it is not anticipated that the project would constitute a significant disruption of habitat values. With the avoidance, minimization, and mitigation measures identified in the Natural Environment Study, the project is consistent with Policy 5.1.4.</p>	
<p>Policy 5.1.6: Development within sensitive habitats. Sensitive habitats shall be protected against any significant disruption of habitat values; and any proposed development within or adjacent to these areas must maintain or enhance</p>	<p>The Natural Environment Study prepared for the project identifies impacts to areas that may be considered sensitive habitat areas under the Local Coastal Program, which are immediately adjacent to the existing transportation infrastructure. As</p>	<p>The No-Build Alternative would be consistent with this policy because no impacts on sensitive habitats would occur.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>the functional capacity of the habitat. Reduce in scale, redesign, or, if no other alternative exists, deny any project which cannot sufficiently mitigate significant adverse impacts on sensitive habitats unless approval of a project is legally necessary to allow a reasonable use of the land.</p>	<p>described above, Section 16.32.100 of the Sensitive Habitat Protection ordinance provides an exception to the standards in Section 16.32.090—specifically, if a road improvement along an existing facility is necessary to protect the public welfare, health, and safety, an exception can be granted upon approval of the environmental coordinator following a biotic review pursuant to Santa Cruz County Code Section 16.32.070. The proposed project, which would provide auxiliary lanes and Bus-on-Shoulder facilities on State Route 1, a primary route that connects the southern and central areas of Santa Cruz County, is necessary to protect the public welfare, health, and safety along the only continuous commuter route that links Watsonville, Capitola, Aptos, Cabrillo College, Santa Cruz, and the University of California. Because the proposed project has the potential to result in temporary and permanent impacts on sensitive habitats, the proposed project’s avoidance, minimization, and mitigation measures would protect sensitive habitats against any significant disruption of habitat values and will maintain or enhance the functional capacity of the habitat. During final design, the design of the project would seek to further minimize the impacts on sensitive habitat areas. The project is therefore consistent with Policy 5.1.6.</p>	
<p>Policy 5.2.2: Riparian corridor and wetland protection ordinance. Implement the protection of Riparian Corridors and Wetlands through the Riparian Corridor and Wetland Protection ordinance to ensure</p>	<p>Potentially jurisdictional U.S. Army Corps of Engineers waters of the U.S. (other waters), Regional Water Quality Control Board waters of the state (streambed and riparian non-wetlands), the California</p>	<p>The No-Build Alternative would be consistent with this policy because no impacts on riparian habitat or wetlands would occur.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>no net loss of riparian corridors and riparian wetlands. The ordinance identifies and defines riparian corridors and wetlands, determines the uses which are allowed in and adjacent to these habitats, and specifies required buffer setbacks and performance standards for land in and adjacent to these areas. Any amendments to this ordinance shall require a finding that riparian corridors and wetlands shall be afforded equal or greater protection by the amended language.</p> <p>Policy 5.2.3: Activities within riparian corridors and wetlands. Development activities, land alteration and vegetation disturbance within riparian corridors and wetlands and required buffers shall be prohibited unless an exception is granted per the Riparian Corridor and Wetlands Protection ordinance. As a condition of riparian exception, require evidence of approval for development from the US Army Corps of Engineers, California Department of Fish and Game, and other federal or state agencies that may have regulatory authority over activities within riparian corridors and wetlands.</p> <p>Policy 5.2.4: Riparian corridor buffer setback (Local Coastal Program) Require a buffer setback from riparian corridors in addition to the specified distances found in the definition of riparian corridor. This setback shall be identified in the Riparian Corridor and Wetland Protection ordinance and established based on stream characteristics, vegetation and slope. Allow reductions to the buffer setback only upon approval of a riparian exception.</p>	<p>Department of Fish and Wildlife streams and riparian areas, and coastal zone/California Coastal Commission streams and riparian non-wetlands were identified within the project area associated with creeks or drainages. The proposed project has the potential to result in temporary and permanent impacts on riparian and wetland resources. These areas are immediately adjacent to existing transportation infrastructure. As allowed in Section 16.30.050 of the Riparian Corridor and Wetlands Protection ordinance, the proposed project meets the following criterion for an exemption: (A) the continuance of any preexisting nonagricultural use, provided such use has not lapsed for a period of 1 year or more. During final design of the project, the project would obtain the following permits from agencies with regulatory authority over activities within riparian corridors and wetlands: Section 404 permit from U.S. Army Corps of Engineers, Section 401 Water Quality Certification from the Regional Water Quality Control Board, Section 1602 Streambed/Lakebed Alteration Agreement from the California Department of Fish and Wildlife, and CDP from Santa Cruz County.</p> <p>The project is therefore consistent with Policy 5.2.2., 5.2.3, 5.2.4, and 5.2.5.</p>	

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>Require a 10-foot separation from the edge of the riparian corridor buffer to any structure.</p> <p>Policy 5.2.5: Setbacks from wetlands. Prohibit development within the 100-foot riparian corridor of all wetlands. Allow exceptions to this setback only where consistent with the Riparian Corridor and Wetlands Protection ordinance, and in all cases, maximize distance between proposed structures and wetlands. Require measures to prevent water quality degradation from adjacent land uses, as outlined in the Water Resources section.</p>		
<p>Policy 5.2.7: Allow compatible uses in and adjacent to riparian corridors that do not impair or degrade the riparian plant and animal systems, or water supply values, such as non-motorized recreation and pedestrian trails, parks, interpretive facilities and fishing facilities. Allow development in these areas only in conjunction with approval of a riparian exception.</p>	<p>The proposed project would be consistent with this policy. The portion of Coastal Rail Trail Segment 12 that would be in or adjacent to riparian corridors would be considered a compatible use, since it would support non-motorized transportation, such as walking and bicycling, and with incorporation of impact avoidance and minimization measures discussed above, these uses would not impair or degrade plant and animal systems.</p>	<p>The No-Build Alternative would be consistent with this policy because no impacts on riparian habitat or wetlands would occur.</p>
<p>Policy 5.1.10: Species protection. Recognize that habitat protection is only one aspect of maintaining biodiversity and that certain wildlife species, such as migratory birds, may not utilize specific habitats. Require protection of these individual rare, endangered, and threatened species and continue to update policies as new information becomes available.</p>	<p>Occupied habitat for Santa Cruz long-toed salamander is present at the Valencia Lagoon adjacent to the Biological Study Area but is absent from the Biological Study Area. This species is fully protected. Repairs to the fence separating the Valencia Ecological Preserve from the State Route 1 right-of-way would be completed prior to the start of project activities and would prevent Santa Cruz long-toed salamander from entering the Biological Study Area.</p> <p>The project would benefit Central California coast steelhead</p>	<p>The No-Build Alternative would be inconsistent with this policy because a temporary fish passage solution would not be constructed at Valencia culvert, which is currently a barrier for fish passage.</p>

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	because a fish passage barrier would be removed at Valencia culvert and a temporary fish passage solution would be implemented, which would result in species protection over the next 5-7 years until a permanent solution is constructed under a planned future project.	
<p>Policy 5.1.11: Wildlife resources beyond sensitive habitats. For areas which may not meet the definition of sensitive habitat contained in policy 5.1.2, yet contain valuable wildlife resources (such as migration corridors or exceptional species diversity), protect these wildlife habitat values and species using the techniques outlined in policies 5.1.5 and 5.1.7 and use other mitigation measures identified through the environmental review process.</p>	<p>Suitable travel corridors are present within the riparian habitat along the streams and drainages in the Biological Study Area for numerous species of birds and terrestrial wildlife migrating through the adjacent developed areas. Within the Biological Study Area, Valencia Creek drains into a culvert under State Route 1 before flowing into Aptos Creek. This culvert has been identified as a partial barrier to fish passage, and a temporary fish passage solution will be constructed as part of the project which would serve to improve migration for Central California coast steelhead until a permanent solution is constructed under a planned future project. No other impacts on wildlife migration corridors would occur. Therefore, the build alternatives would not conflict with this policy.</p>	<p>The No-Build Alternative would be inconsistent with this policy because a temporary fish passage solution would not be constructed at Valencia culvert, which is currently a barrier for fish passage.</p>
<p>Policy 5.4.3: Water pollution from urban runoff. Review proposed development projects for their potential to contribute to water pollution via increased storm water runoff. Utilize erosion control measures, on-site detention and other appropriate storm water Best Management Practices to reduce pollution from urban runoff; and</p> <p>Policy 5.7.1. Impacts from new development on water quality. Prohibit new development adjacent to marshes, streams and bodies of water if such</p>	<p>The Aptos Creek watershed, including Aptos Creek and Valencia Creek, is identified as a Critical Coastal Area by the California Coastal Commission as a coastal watershed where an impaired water body on the 303(d) list (Aptos Creek) flows into a federal Marine Managed Area (the Monterey Bay National Marine Sanctuary). Aptos Creek is impaired by indicator bacteria and sedimentation/siltation. As described in the project's Natural Environment Study and Water Quality Assessment Report (WRECO 2022), the</p>	<p>The No-Build Alternative would be consistent with this policy because impacts on water quality would occur.</p>

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development would cause adverse impacts on water quality which cannot be fully mitigated.	project would include avoidance, minimization, and mitigation measures, including stormwater treatment facilities, to prevent water quality degradation. Therefore, the project is consistent with Policy 5.4.3.	
Policy 5.19.3: Development around archaeological resources. Protect archaeological resources from development by restricting improvements and grading activities to portions of the property not containing these resources, where feasible, or by preservation of the site through project design and/or use restrictions, such as covering the site with earthfill to a depth that ensures the site will not be disturbed by development, as determined by a professional archaeologist.	Although the project area includes portions of two known archaeological sites, Caltrans has conducted Extended Phase 1 and Phase 2 Testing of these sites to determine the presence or absence of a subsurface deposit and, if present, define its horizontal and vertical extent, and assess its eligibility for listing in the National Register of Historic Places and California Register of Historical Resources. If a resource is found eligible, and an adverse effect on the resource is anticipated, a Memorandum of Agreement executed by the Federal Highway Administration, the State Historic Preservation Officer, and Caltrans would identify measures to resolve any adverse effects. In addition to any such measures, provisions regarding the inadvertent discovery of cultural materials or human remains would be implemented pursuant to California Health and Safety Code 7050.5 and Public Resources Code 5097.98. The resolution of any adverse effect through a Memorandum of Agreement would provide consistency with Policy 5.19.3.	The No-Build Alternative would be consistent with this policy because no ground disturbance or potential impacts on archaeological resources would occur.
Policy 3.14.2: Priority to recreational improvements. In the development of transportation improvement programs, consider giving priority to road improvements which provide access to recreational resources.	The proposed project would be consistent with this policy by reducing delay, providing efficient public transit facilities, and creating and improving pedestrian and bicycle facilities within the project area, which would provide greater access to recreational resources.	The No-Build Alternative would be inconsistent with this policy because delay would continue to worsen, and improvements would not be made to access, public transit, pedestrian, or bicycle

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>Policy 6.4.4: Located Public Facilities Outside Flood Hazard Areas. Require new utilities, critical facilities, and non-essential public structures to be located outside the 10-year flood and coastal high hazard areas, unless such facilities are necessary to serve existing uses, there is no other feasible location, and construction of these structures will not increase hazards to life or property within or adjacent to the floodplain or coastal inundation areas.</p>	<p>Portions of the project are within Zone AE, which is subject to flooding by the 100-year flood event. A floodway has also been defined along Aptos Creek. While the railroad structures would cross over this creek, the improvements would be outside of the special flood hazard area. As described in Section 2.2.1, the project would not be a significant encroachment on the base floodplain. Therefore, the build alternative would not conflict with this policy.</p>	<p>facilities. The No-Build Alternative would be consistent with this policy because no facilities would be constructed in a flood hazard or coastal high hazard area.</p>
<p>Policy 6.4.7: New Construction to be Outside Flood Hazard Areas: Restrict new construction to the area outside the 100-year floodplain and area subject to coastal inundation if a buildable portion of the parcel exists outside such areas.</p>	<p>Portions of the project are within Zone AE, which is subject to flooding by the 100-year flood event. A floodway has also been defined along Aptos Creek. While the railroad structures would cross over this creek, the improvements would be outside of the special flood hazard area. As described in Section 2.2.1, the project would not be a significant encroachment on the base floodplain. Therefore, the build alternative would not conflict with this policy.</p>	<p>The No-Build Alternative would be consistent with this policy because no facilities would be constructed in a flood hazard or coastal high hazard area.</p>
<p>Policy 7.5.5: Recreation Within Watershed Reserves. Provide public opportunities for wilderness recreation experiences by allowing public access to major publicly owned domestic watershed reserves, where such use can be accomplished without harm to the watershed function of the areas. Develop trail systems, interpretive signing, and camping sites where feasible.</p>	<p>The Build Alternative is consistent with this policy, as it includes construction of Coastal Rail Trail Segment 12, which will further public opportunities for wilderness recreation experiences. The trail crosses Valencia and Aptos Creeks and would provide trail users the opportunity to view these areas without harm to the watershed function. The Build Alternative has been designed to reduce the footprint to the maximum extent feasible in order to reduce impacts to the surrounding natural areas. As described in Section 2.3 of the EIR/EA, there are no adverse impacts related to biological resources or natural</p>	<p>The No-Build Alternative would not conflict with this policy because there would be no change in existing public access to major publicly-owned domestic watershed reserves.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	communities.	
<p>Policy 7.5.6: Access to Major Inland Water Bodies. Provide for public access around the margins of all major natural inland water bodies sufficient to allow the development, where appropriate, of a safe equestrian, hiking, and/or bicycle trail without major disturbance to the shoreline.</p>	<p>The Build Alternative supports this policy as it includes construction of Coastal Rail Trail 12, which will increase accessibility throughout the area as connections to the overall Monterey Bay Scenic Trail are added. The ultimate trail configuration (including the optional first phase, and removal of optional first phase) has the potential to enhance neighborhood cohesion by providing new pedestrian and bicycle access within the project corridor. With two new pedestrian and bicycle overcrossings of State Route 1, Coastal Rail Trail Segment 12 would support pedestrian and bicycle connections between Aptos Village and neighborhoods located on the other side of State Route 1.</p>	<p>The No-Build Alternative would not conflict with this policy because there would be no change in access to major inland water bodies.</p>
<p>(LCP) f. Support the development of the state trails system linking state beaches with the state mountain parks, subject to policy 7 .6.2. (Responsibility: Board of Supervisors, Parks Commission, Planning Department, County Parks)</p>	<p>The project, including Coastal Rail Trail Segment 12, is not in the immediate vicinity of a state beach or state mountain park. Parks and recreational uses in the project vicinity are described in Section 3.2 of the EIR/EA.</p>	<p>The No-Build Alternative would be inconsistent with this policy because Segment 12 of the Coastal Rail Trail, which is part of the overall Monterey Bay Sanctuary Scenic Trail Network, would not be constructed.</p>
<p>Objective 7.7b Shoreline Access (LCP): To provide a system of shoreline access to the coast with adequate improvements to serve the general public and the coastal neighborhoods which is consistent with the California Coastal Act, meets public safety needs, protects natural resource areas from overuse,</p>	<p>The project does not impede shoreline access to the coast, or otherwise conflict with this policy. The Build Alternative would increase accessibility in the study area for bicyclists and pedestrians with the Coastal Rail Trail Segment 12 connection, and would also reduce delay in the project corridor, while also increasing transit opportunities.</p>	<p>The No-Build Alternative would not conflict with this policy because there would be no changes to existing shoreline access.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>protects public rights and the rights of private property owners, minimizes conflicts with adjacent land uses, and does not adversely affect agriculture, subject to policy 7.62.</p>		
<p>Objective 7.7c Beach Access (LCP): To maintain or provide access, including visual access, to every beach to which a granted access exists or to which the public has acquired a right of access through use, as established through judicial determination of prescriptive rights, and acquisition through appropriate legal proceedings, in order to ensure one access to every pocket beach and convenient, well distributed access to long sandy beaches, subject to policy 7 .6.2.</p>	<p>As stated above, the project does not impede beach access to the coast or coastal views, or otherwise conflict with this policy. The Build Alternative would increase accessibility in the study area for bicyclists and pedestrians with the Coastal Rail Trail Segment 12 connection, and would also reduce delay in the project corridor, while also increasing transit opportunities.</p>	<p>The No-Build Alternative would not conflict with this policy because there would be no change in access to public beaches.</p>
<p>Policy 7.7.11 Vertical Access (LCP): Determine whether new development may decrease or otherwise adversely affect the availability of public access, if any, to beaches and/or increases the recreational demand. If such impact will occur, the County will obtain, as a condition of new development approval, dedication of vertical access easements adequate to accommodate the intended use, as well as existing access patterns, if adverse environmental impacts and use conflicts can be mitigated, under the following conditions: (a) Outside the Urban Services Line:</p> <ul style="list-style-type: none"> • to pocket beaches if there is no other dedicated vertical access; 	<p>The Build Alternative includes adding auxiliary lanes and a bus-on-shoulder component to the segment of State Route 1 between Freedom Blvd. and State Park Drive, and construction of Coastal Rail Trail Segment 12. While the project would not affect public access to beaches, it would reduce delay on State Route 1 in the project corridor, increase transit reliability and transit ridership, and increase connectivity for bicyclists and pedestrians via the trail. The Build Alternative would not induce population, and therefore would not induce recreational demand. The project is intended to improve bottlenecks and delay on State Route 1 for existing and future users.</p>	<p>The No-Build Alternative would not conflict with this policy because no new development would occur and thus public access to beaches would not change.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<ul style="list-style-type: none"> • to long sandy beaches if there is no dedicated vertical access within one-half mile; • to bluffs which are large enough and of a physical character to accommodate safety improvements, and which provide room for public use as a vista point <p>(b) Within the Urban Services Line:</p> <ul style="list-style-type: none"> • from the first public roadway to the shoreline if there is not dedicated access within 650 feet; • through properties inland of the first public roadway if there is evidence that residents have been using the property to gain access to the shoreline, and if closure of the pathway would require residents to detour more than one-eighth mile. <p>(c) All dedications required shall comply with policy 7.6.2 and the other policies of this chapter.</p>		
Seacliff Village Plan		
<p>4.4.5 Rail Transit: The Santa Cruz County Regional Transportation Commission has adopted a Major Transportation Investment Strategy (MTIS) that includes rail transit between Watsonville and Santa Cruz utilizing the existing Union Pacific tracks. One of the proposed stations/platforms would be in the Seacliff Village, most likely at the northern end of Broadway. It is therefore important that adjacent development not preclude the possibility of a rail transit station or platform.</p>	<p>The proposed project is consistent with the future rail transit possibilities for this area. The interim first phase of the trail is intended to utilize the rail corridor until such date that rail transit is viable in corridor and includes replacing rail that is removed in the interim. The ultimate trail configuration would place the trail next to the rail. Neither option would preclude adjacent development.</p>	<p>The no-build alternative would be consistent with this policy because no construction would take place and adjacent development would not be precluded.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>5.3.2: Scenic Views: The panoramic, scenic views from the Seacliff village area to the Monterey Bay National Marine Sanctuary and surrounding mountains shall receive the highest amount of attention and level of protection possible.</p>	<p>The proposed project would be consistent with this policy. The Seacliff Community Planning Area is located south of State Route 1. Therefore, no views towards the ocean would be affected and any tree or vegetation removal that occurs would also not affect views. Segment 12 of the Coastal Rail Trail bisects the Seacliff Village Community Plan Area, north of the existing residences.</p>	<p>The No-Build Alternative would be consistent with this policy because there would be no change in scenic views if the project is not constructed.</p>
<p>5.3.4. Walls and Fences, Lighting:</p> <p>Walls and fences provide needed screening in addition to privacy and security. When creatively designed and integrated with landscaping and/or other site development details, they can combine attractiveness with utility.</p> <p>Lighting within the village core area shall be kept to a minimum except where safety is an issue. In an effort to increase nighttime visibility, provide additional security and improve vehicular safety, appropriate overhead lighting shall be proposed for areas such as the neighborhood-serving commercial properties, public community centers, parking areas, key intersections and along the roadways as per County and PG&E standards.</p>	<p>The proposed project involves construction of several retaining walls and sound walls, but aesthetic treatments would ensure that they blend with the natural landscape and do not detract from views. Fencing may be implemented for the ultimate trail condition, but this would be a safety measure to separate the rail and the trail. Any fencing along the trail would be visible by trail users, rather than residents of Seacliff Village. Details regarding the type of fencing that could be used will be available during the design phase of the project. Lighting may also be used for both the optional first phase and the ultimate trail condition. Lighting would be similar to the lighting used on other segments of the trail and would be used to promote safety on a neighborhood-serving trail. Therefore, the build alternative would be consistent with this policy.</p>	<p>The No-Build Alternative would be consistent with this policy because no walls or fences would be constructed.</p>
County of Santa Cruz Riparian Corridor and Wetlands Protection Ordinance		
<p>The purpose of this Ordinance is to minimize and to eliminate any development activities in the riparian corridor, preserve, protect, and restore riparian corridors for: protection of wildlife habitat; protection of water quality; protection of aquatic habitat; protection of</p>	<p>Potentially jurisdictional U.S. Army Corps of Engineers waters of the U.S. (other waters), Regional Water Quality Control Board waters of the state (streambed and riparian non-wetlands), the California Department of Fish and Wildlife streams and riparian areas, and</p>	<p>The No-Build Alternative would be consistent with this policy because no impacts on riparian habitat or wetlands would occur.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
<p>open space, cultural, historical, archaeological and paleontological, and aesthetic values; transportation and storage of floodwaters; prevention of erosion; and to implement the policies of the General Plan and the Local Coastal Program Land Use Plan.</p>	<p>coastal zone/California Coastal Commission streams and riparian non-wetlands were identified within the project area associated with creeks or drainages. The proposed project has the potential to result in temporary and permanent impacts on riparian and wetland resources. As described with regard to Policy 5.2.2, these areas are immediately adjacent to existing transportation infrastructure. As allowed in Section 16.30.050 of the Riparian Corridor and Wetlands Protection ordinance, the proposed project meets the following criterion for an exemption: (A) the continuance of any preexisting nonagricultural use, provided such use has not lapsed for a period of 1 year or more. The proposed project would implement avoidance, minimization, and mitigation measures included in the Natural Environment Study to support the preservation, protection, and restoration of riparian corridors and the protection of wildlife habitat and aquatic habitat. The proposed project would implement avoidance, minimization, and mitigation measures included in the Water Quality Assessment Report (2022) to support the protection of water quality and aquatic habitat and prevent erosion. The proposed project would implement avoidance, minimization, and mitigation measures included in the Historic Resources Evaluation Report (2022) to protect historical and archaeological resources. The proposed project would implement measures included in the Visual Impact Assessment to protect aesthetic values. The project is therefore consistent</p>	

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	with the Riparian Corridor and Wetland Protection Ordinance.	
California Coastal Act		
<p>30210: In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.</p>	<p>The proposed project would be consistent with this policy because the project would not impede public recreational opportunities. Delay on State Route 1 would be reduced, and the trail would increase connectivity. Overall, opportunities for access would be improved in the study area.</p>	<p>The No-Build Alternative is inconsistent with this policy because existing circulation and access deficiencies would persist or worsen. While the No-Build Alternative would not directly prevent access, delays would be exacerbated in the future.</p>
<p>30223: Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.</p>	<p>The proposed project would not conflict with this policy because no conflicts with coastal recreational uses would occur. The proposed project indirectly improves coastal recreational uses by reducing delays on State Route 1, reducing cut through traffic on local streets, improving public transit, and improving and bicycle and pedestrian connectivity.</p>	<p>The No-Build Alternative would not conflict with this policy because no construction would occur and there would be no changes to upland areas.</p>
<p>30231: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of</p>	<p>As described in the project’s Natural Environment Study and Water Quality Assessment Report, the project would include avoidance, minimization, and mitigation measures, including stormwater treatment facilities, to prevent water quality degradation. Because the project is anticipated to have to comply with Caltrans’ Municipal Separate Storm Sewer System post-construction permit requirements, treatment best management practices from the Caltrans list of approved treatment best management practices that allow stormwater infiltration will be considered for the project. This would reduce potential impacts on groundwater recharge. Mitigation Measure BIO-17 would ensure vegetation</p>	<p>The No-Build Alternative would be consistent with this policy because no construction would occur and there be no change related to water discharges or impacts to vegetation.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
natural streams.	and tree removal would be replanted.	
<p>30240(a): Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.</p>	<p>As described in the Natural Environment Study, potential dewatering could lead to a temporal loss of habitat for steelhead. Removal of Eucalyptus trees or vegetation during roosting season (October 1-March 1) could result in impacts to sensitive Monarch habitat. However, impacts to critical habitat for both of these species would be reduced and mitigated through implementation of avoidance, minimization, and mitigation measures described in Section 2.3.5. Therefore, the proposed project would not conflict with this policy.</p>	<p>The No-Build Alternative would be consistent with this policy because no construction would occur and there be no impacts on sensitive habitat.</p>
<p>30251: The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.</p>	<p>The proposed project would not obstruct public ocean vistas. Natural landforms would not be altered. Trees and mature vegetation would be removed. The proposed project would require the removal of mature trees adjacent to State Route 1 and the Santa Cruz Branch Rail Line but would not modify ridgetops. Some slopes immediately adjacent to State Route 1 and the Santa Cruz Branch Rail Line would require grading and construction of retaining walls; however, impacts on hillsides would be limited to areas along existing transportation corridors. During final design, the proposed project would develop aesthetic treatments for retaining walls and preserve existing natural vegetation that buffers adjacent development from State Route 1 to the extent feasible. Where existing trees would be removed, they would be replaced at various ratios, depending on the species of tree. For example, any coast live oak tree that is</p>	<p>The No-Build Alternative would be consistent with this policy because no construction would occur and there would be no changes to views or scenic areas.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
	removed will be replaced at a 10 to 1 ratio. Therefore, the proposed project would not conflict with this policy.	
<p>30252: The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing non-automobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.</p>	<p>The proposed project includes the Bus-on-Shoulder component, which would expand transit opportunities throughout the corridor.</p>	<p>The No-Build Alternative would be consistent with this policy because no development would occur, although transit opportunities would not be improved.</p>
<p>30253: New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (c) Be</p>	<p>The Build Alternative would not result in any significant impacts related to geologic, flood, fire hazard, and air quality conditions. The highway, bridges, and rail trail would all be constructed with structural integrity and adhere to all applicable codes and standards and impacts related to erosion or other impacts to the surrounding areas would be mitigated. As shown in the countywide analysis, the project would reduce vehicle miles traveled</p>	<p>The No-Build Alternative would potentially be inconsistent with this policy because vehicle miles traveled would not be reduced.</p>

County of Santa Cruz 1994 General Plan and Local Coastal Program Policies	Consistency Analysis for Build Alternative	Consistency Analysis for No-Build Alternative
consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development. (d) Minimize energy consumption and vehicle miles traveled. (e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.		

Build Alternative

As shown in Table 2-1, the proposed project (as well as the ultimate trail configuration, optional first phase improvements and removal of optional first phase) is consistent with policies from the County of Santa Cruz Local Coastal Program. As discussed in Table 2-1, the project design and avoidance and minimization measures would ensure that impacts on coastal resources, including environmentally sensitive habitat areas and visual resources are reduced to the maximum extent, and would ensure protection against coastal hazards. The proposed project would provide a net benefit to coastal recreational resources and coastal access by preserving and enhancing park and recreational land uses and improving access to these resources by reducing delay along State Route 1.

No-Build Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or Bus-on-Shoulder features on State Route 1 within the project area, and Coastal Rail Trail Segment 12 would not be constructed. The existing transportation facilities within the project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on State Route 1 and other segments of the Coastal Rail Trail. The No-Build Alternative would be inconsistent with policies that relate to improving access to coastal and recreational resources because traffic conditions would continue to worsen along State Route 1 and on nearby local streets. The No-Build Alternative would result in increased delay and would not improve pedestrian or bicycle facilities, public transit facilities, access to beaches, or recreational land uses.

Avoidance, Minimization, and/or Mitigation Measures

Project avoidance and minimization measures that would reduce impacts on the coastal zone are described in Table 2-1. No other measures related to the coastal zone are required.

References

- California Department of Transportation. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project Community Impact Assessment. September.
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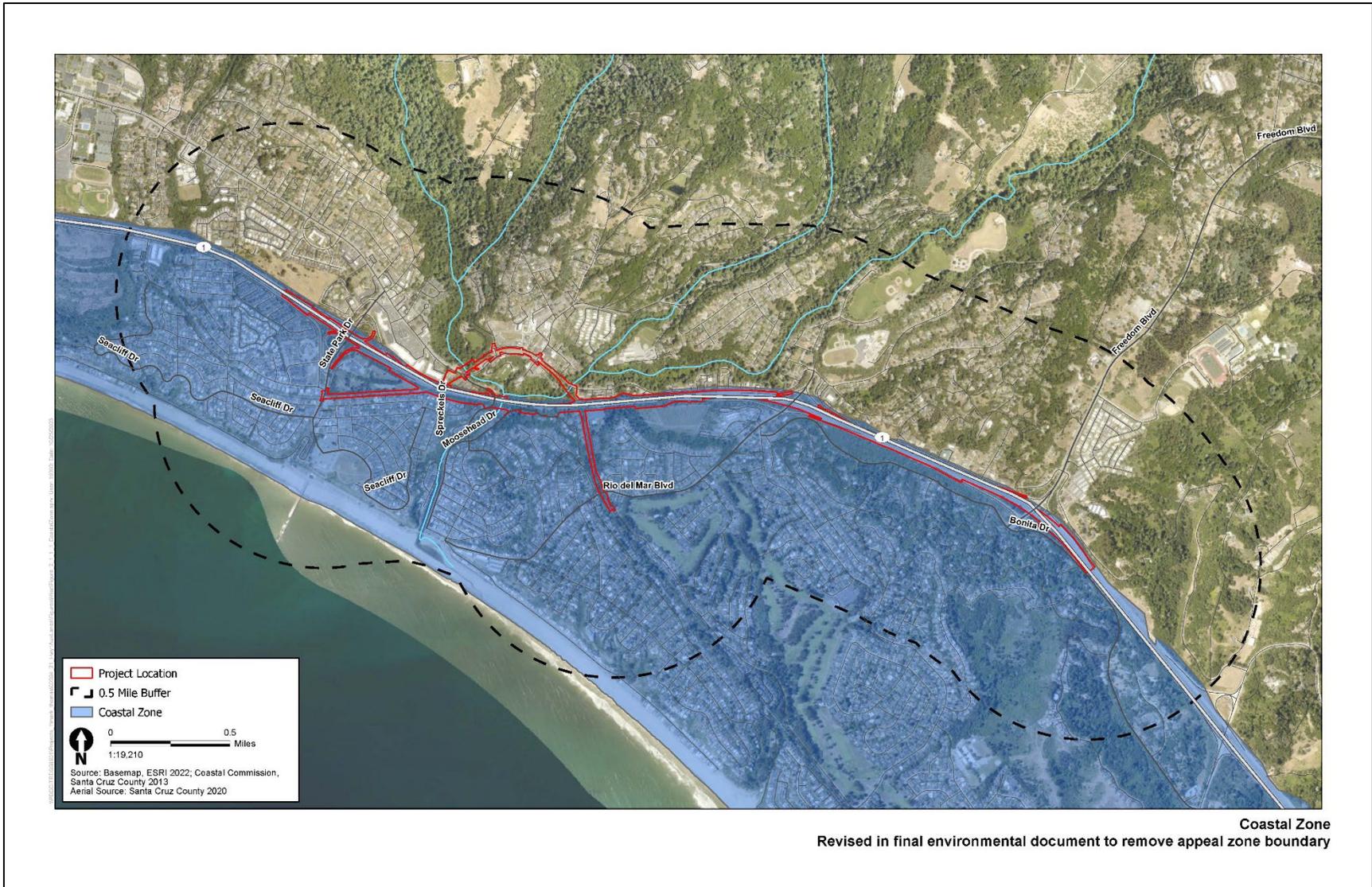


Figure 2-1. Coastal Zone Boundary

2.1.2 Parks and Recreational Facilities

Regulatory Setting

The Park Preservation Act (California Public Resources Code 5400–5409) prohibits local and state agencies from acquiring any property that is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

Affected Environment

This section was prepared using information from the Community Impact Assessment prepared by the California Department of Transportation (Caltrans) in September 2022 (Caltrans 2022).

As listed in Table 2-2 and shown on Figure 2-2, there are seven parks and recreational facilities within the project study area, one privately owned golf course and one privately owned tennis club open to the public. The numbers in the table correspond to locations shown on Figure 2-2. These facilities are operated by the California Department of Parks and Recreation; County of Santa Cruz Parks, Open Space and Cultural Services; or private operators.

As shown in Table 2-2, seven of the parks in the project study area are protected by the Park Preservation Act.

Table 2-2. Parks and Recreational Facilities Within 0.5 Mile of Project Area

Number	Park Name	Owner	Address/Location
1	Forest of Nisene Marks State Park	State of California	Aptos Creek Road/Soquel Drive, Aptos
2	Aptos Village County Park	County of Santa Cruz	100 Aptos Creek Road, Aptos
3	Seacliff Village County Park	County of Santa Cruz	McGregor Drive/Canterbury Drive/Sea Ridge Road, Aptos
4	Polo Grounds Park	County of Santa Cruz	2255 Huntington Drive, Aptos
5	Seacliff State Beach	County of Santa Cruz	State Park Drive, Aptos
6	Rio Del Mar State Beach	County of Santa Cruz	Rio Del Mar Boulevard, Aptos
7	Hidden Beach Park	County of Santa Cruz	Hidden Beach Way, Aptos
8	Seascape Golf Club	Privately Owned	Clubhouse Drive, Aptos
9	Tennis Club of Rio Del Mar	Privately Owned	Sandalwood Drive, Aptos

Environmental Consequences

Build Alternative

The proposed project would require a temporary construction easement in Aptos Village County Park, immediately adjacent to the Santa Cruz Branch Rail Line right-of-way, for construction of Coastal Rail Trail Segment 12. No other use of park land is proposed. Aptos Village County Park would remain open during construction; however, 15,810 square feet of the park would be temporarily unavailable to the public. This portion of the park includes vegetated open land. No structures or park amenities are located in this area. While land acquisitions would be required to complete Coastal Rail Trail Segment 12 in the vicinity of Aptos Village, the majority of the proposed project would occur entirely within the existing Caltrans right-of-way or Santa Cruz Branch Rail Line right-of-way, and would result in minor temporary impacts on Aptos Village County Park. No permanent impacts on Aptos Village County Park or any other public parks or recreational facilities would occur. At the Aptos Village County Park, the proposed trail connection to Aptos Village Road would allow for an integrated trail network and allow park users to access the coastal trail. The provisions of Section 4(f) of the U.S. Department of Transportation Act would not apply in this case because the connection to the County Park would not result in parkland being converted to a transportation use. Please see Appendix E for concurrence from Santa Cruz County Parks who is the agency with jurisdiction over the park.

A small portion (0.03 acre) of the privately-owned Tennis Club of Rio Del Mar would be permanently acquired as part of the Coastal Rail Trail Segment 12 improvements; however, no permanent effect to the tennis club operations would result. Since this is a privately-owned tennis club, provisions of Section 4(f) would not be triggered. Additionally, the proposed project would require temporary road and ramp closures and detours during construction along State Route 1. Temporary road and ramp closures during construction may affect certain routes to nearby parks, beaches, and other recreational facilities in the vicinity of the project; however, detours would be established to maintain access to those facilities throughout construction.

There are publicly owned parks and recreational facilities within the project vicinity that are protected by Section 4(f) of the Department of Transportation Act of 1966. However, this project will not “use” those facilities as defined by Section 4(f).

No-Build Alternative

The No-Build Alternative would not result in direct or indirect impacts on parks, beaches, or other recreational facilities. It would not affect access to parks, beaches, and recreational facilities; however, traffic conditions would continue to worsen along State Route 1, which would not ultimately improve access to such facilities, and the access connection at Aptos Village Park would not be constructed.

Avoidance, Minimization, and/or Mitigation Measures

Although no adverse impacts on parks or other recreational facilities are anticipated to occur as a result of the proposed project, a Transportation Management Plan will ensure appropriate detours are established such that access to all facilities is maintained throughout construction. The Transportation Management Plan will also require coordination with and notification of all proposed road closures and detours prior to implementation. Please refer to Section 2.1.7 for additional details regarding the Transportation Management Plan.

References

California Department of Transportation. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project Community Impact Assessment. Final September.

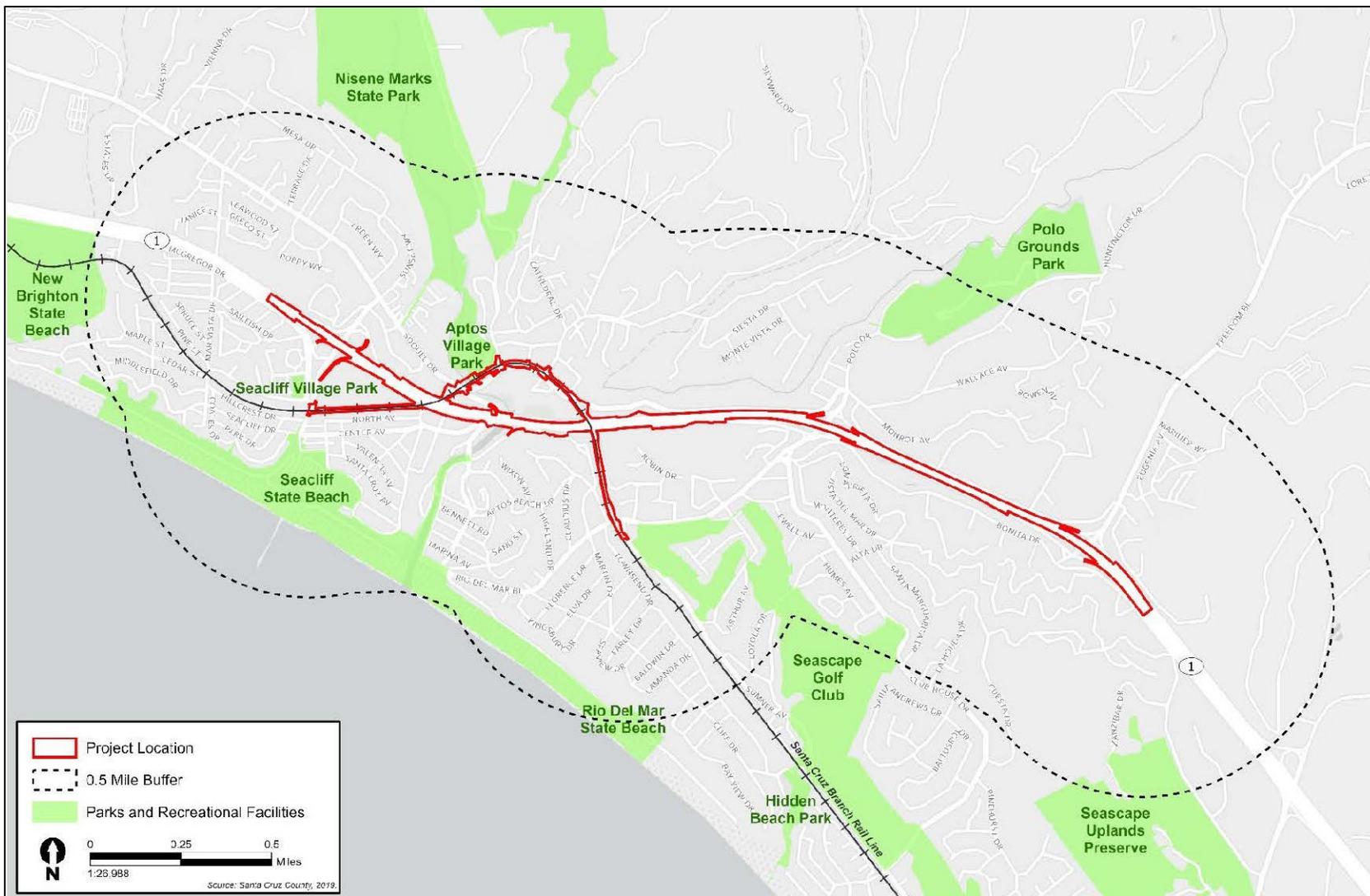


Figure 2-2. Parks and Recreational Facilities

2.1.3 Growth

Regulatory Setting

The Council on Environmental Quality regulations, which established the steps necessary to comply with the National Environmental Policy Act of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations (40 Code of Federal Regulations 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. The CEQA Guidelines (15126.2(d)) require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

Affected Environment

This section was prepared using information from the Community Impact Assessment prepared in September 2022 (Caltrans 2022).

The study area for this analysis includes the larger region to conservatively capture any indirect growth effects of the proposed project. Specifically, the study area includes Santa Cruz and Monterey Counties; the cities of Santa Cruz, Capitola, Marina, and Watsonville; and the urban service areas of Live Oak, Aptos, and Freedom, which will make up over 70% of the total housing growth in Santa Cruz County between 2000 and 2030. Applicable planning documents were reviewed, and opinions of local planners and officials were sought to identify any new information that could affect growth. In 2020, the Santa Cruz County Regional Transportation Commission formed an expert panel of stakeholders and representatives from local planners and officials to gather their opinions about the growth potential for the region, which is described below.

Certain areas, such as San Benito County and the cities of San Juan Bautista, Hollister, and Salinas, are not included in the study area because growth in these areas is considered unlikely to be affected by the proposed project. Growth in these areas is not anticipated to occur as a result of modifications to the State Route 1 corridor because very few residents of these areas work in the city of Santa Cruz due to the difficult commute. Because San Juan Bautista is the gateway to the city of Hollister, a similar statement could be made about Hollister and San Benito County as a whole. Water has also become very expensive in these areas, particularly in San Juan Bautista, which is creating a resource constraint to growth. The

inventory of vacant mixed-use-zoned land in Salinas totals 16.5 acres. Although Salinas may be an area of future growth, it is not anticipated that this project would have any effect there given the number of “choke points” on the highways between Salinas and the project area, and there are no capacity improvements planned for the two-lane segment of State Route 1 south of Santa Cruz County. Planned residential developments in Salinas might sell out faster if commuting to Santa Cruz becomes easier but would not change the amount of planned growth in Salinas.

Environmental Consequences

Build Alternative

How, if at all, does the project potentially change accessibility?

Accessibility refers not just to the physical constraints associated with transportation projects, but rather reflects both the attractiveness of potential destinations and ease of reaching them, which, in turn, are related to land use and circulation issues. According to the Traffic Study prepared for the proposed project (CDM Smith 2021), proposed improvements to bus service as well as interim improvements from auxiliary lanes would reduce delay and travel times between Santa Cruz and Watsonville by 13 minutes in the northbound direction and 8 minutes in the southbound direction during the AM peak travel period, and would reduce travel times by 20 minutes in the northbound direction and 8 minutes in the southbound direction during the PM peak travel period in the opening year (2025). The project would reduce travel times between Santa Cruz and Watsonville by 3 minutes in the northbound direction and 8 minutes in the southbound direction during the AM peak travel period and would reduce travel times by 19 minutes in the northbound direction and 9 minutes in the southbound direction during the PM peak travel period in year 2045 (20 years after construction completion). Reduced delay and travel times on State Route 1 between Santa Cruz and Watsonville could improve access between employment centers, such as the city of Santa Cruz, and areas that have the potential to support new growth, such as the cities of Watsonville and Marina, and the unincorporated communities of Aptos, Live Oak, and Freedom.

Thus, the Build Alternative would make important areas of the Santa Cruz region more accessible in terms of travel times and travel behavior, especially for commuters and transit riders traveling north in the AM peak travel period and south in the PM peak travel period. In this regard, the proposed project would improve accessibility in the region as travel time savings and transit improvements would appeal to commuters within the study area. Further, it could also increase the appeal of housing in more affordable areas in southern Santa Cruz County and northern Monterey County.

How, if at all, does the project type, project location, and growth-pressure potentially influence growth?

Project Type

Certain transportation project types, such as auxiliary lane projects in an urbanized area with low growth rates and little remaining development capacity, are unlikely to cause growth-related impacts. Other types of projects, such as construction of new highways, may have more potential for such impacts. Typically, projects that create a new facility or new access require an analysis of growth-related impacts.

The Build Alternative would provide auxiliary lanes on both the northbound and southbound sides of State Route 1, extending approximately 2.6 miles between the State Park Drive and Freedom Boulevard interchanges. In addition, the Build Alternative would construct a bicycle and pedestrian trail along an approximately 1.14-mile segment of the Santa Cruz Branch Rail Line right-of-way, from Rio Del Mar Boulevard to State Park Drive. Other than the proposed trail segment, the Build Alternative would not provide new roads or new access to areas that are currently inaccessible. Rather, it would reduce existing and future freeway traffic delay and travel times during peak travel hours and provide for alternative modes of travel that do not currently exist along this freeway.

Regarding the proposed Coastal Rail Trail Segment 12, bicycle accessibility would be improved; however, the influence on growth would be small since the proposed trail segment is a part of a larger trail program that is intended as a scenic/recreational amenity rather than a transportation facility. Further, bicycle trails have limited utility for commuting and the proposed facility would only provide a parallel means of access to State Route 1 rather than opening a new corridor to a previously inaccessible location. Following completion of the project, State Route 1 may be more attractive for existing and potential future freeway users compared to the current condition, but proposed improvements would occur along a short section of an existing freeway corridor, addressing projected traffic volumes, and encouraging drivers to use public transit or non-motorized transportation.

Auxiliary lane projects in a highly urbanized area with low growth rates and little remaining development capacity are unlikely to cause growth-related impacts. Based on the project type, the urbanized condition of the project area, and the constraints to growth, such as the limited quantity of developable land and environmental constraints, the proposed project is not expected to result in direct impacts related to growth in the form of providing access to new areas that are currently inaccessible. However, it is possible that the project, including the associated reduced travel times, could make areas surrounding employment centers where developable land is still available, more appealing for future development if peak travel commute

times are reduced. This could result in indirect effects in the form of growth pressure on surrounding areas that can support future growth.

Project Location

Another important screening factor is project location—whether a project is located in an urban, suburban, urban/suburban fringe, or rural area, and whether the location of the project could influence growth. The project is located in a suburban area with limited developable land. Although it is suburban, the project area is subject to the “missing middle” housing demand and is a highly desirable community in which to live. As a result, housing pressure in the area is high and prices have risen while supply is limited. As confirmed by the expert panel, growth in the local job centers, such as the cities of Santa Cruz and Capitola, is limited to infill development due to the lack of developable land designated for future residential or commercial development. Infill development in these areas is expected to be planned development that would occur independent of improvements along State Route 1. The areas that have the potential to support new growth generally include the outlying areas in the southern portion of Santa Cruz County and northern portion of Monterey County, in the cities of Watsonville and Marina, and the unincorporated communities of Aptos, Live Oak, and Freedom, where developable land designated for residential and commercial uses is still available. These areas are planned for future growth through gradual development of higher-density housing, which will support planned job growth in the nearby employment centers, within and near the city of Santa Cruz.

The Build Alternative would not directly promote additional growth within the region; however, it could indirectly contribute to growth pressure in the region by making certain outlying areas in the vicinity of the city of Santa Cruz more appealing for future growth by reducing delay and improving travel times for commuters traveling to Santa Cruz from areas south where development could occur. Planned growth in the region is not dependent on the proposed project and is not expected to be substantially influenced by the proposed project. Therefore, in terms of project location, the proposed project would not be anticipated to result in direct growth-related impacts; however, it could result in indirect impacts in the form of growth pressure for areas in the vicinity of the city of Santa Cruz where additional development could occur.

Growth Pressure

The project is not expected to result in direct impacts related to growth; however, due to the high desirability and demand for housing in the area, it is possible that the reduced delay and improved travel time savings on State Route 1 between Santa Cruz and Watsonville achieved by the proposed project could indirectly contribute to growth pressure in areas where additional growth could occur. Growth in the cities of Santa Cruz and Capitola is expected to be limited to planned infill development that would occur independent of State Route 1 improvements. Additionally, based on

responses from the expert panel, it is evident that recent changes to state housing law have begun to put pressure on local jurisdictions to implement their housing elements and provide affordable housing. The cities of Watsonville and Marina and the unincorporated communities of Live Oak, Aptos, and Freedom have been identified as having developable land remaining that would be suitable for future development. Therefore, the proposed project could indirectly contribute to growth pressure in those areas by reducing commute times during peak travel periods from those areas to employment centers in the city of Santa Cruz and surrounding areas.

Whether or not project-related growth is “reasonably foreseeable.”

Based on the suburban condition of the project area, availability of some developable land, and the project type, the proposed project is not expected to result in direct impacts related to growth. However, due to the high desirability and demand for housing in the area, it is reasonably foreseeable that the reduced delay and improved travel time savings on State Route 1 between Santa Cruz and Watsonville achieved by the proposed project could indirectly contribute to growth pressure in areas where additional growth could occur. The proposed project would not remove or change existing obstacles to growth, such as the availability of water or other utilities or service systems, the presence of resource constraints, public attitudes toward growth, land use policy or zoning constraints, or other market constraints; therefore, growth that could occur is expected to be in the form of planned growth, not unplanned growth. This planned growth is expected to occur in areas where developable land that is already zoned or designated for residential and/or commercial land uses is available. Based on review of applicable planning documents and feedback from the expert panel, planned growth is reasonably foreseeable in the cities of Watsonville and Marina and the unincorporated communities of Aptos, Live Oak, and Freedom.

If there is project-related growth, how, if at all, will that impact resources of concern?

Based on the analysis provided in this section, reasonably foreseeable growth is expected to be limited to planned growth that could occur as a result of growth pressure that could be indirectly influenced by the reduced delay and improved travel time savings on State Route 1 achieved by the proposed project. Future planned development in the cities of Santa Cruz and Capitola and surrounding developed areas is anticipated to be limited to infill development (building within unused land). Infill development is not expected to result in impacts on resources of concern other than water, if water availability is constrained at the time of future development. Future infill projects would be subject to environmental review and would be required to identify adequate water supplies prior to development.

New development or redevelopment is expected to occur in the form of planned development within existing undeveloped areas that are zoned or

otherwise designated for residential and/or commercial development in the cities of Watsonville and Marina and the unincorporated communities of Aptos, Live Oak, and Freedom. Areas that meet these criteria have been identified to assess the potential for impacts on resources of concern.

Some areas identified for potential future development are currently undeveloped, and some of them are entirely disturbed and surrounded by existing development. Within those areas, impacts on resources of concern other than water supply are not expected. Other areas where development could occur are next to and may support habitats for special-status species. Important resources of concern that have the potential to be affected include riparian and freshwater emergent wetland habitats; grassland and woodland habitats; nesting habitat for migratory birds; burrowing owl habitat; designated critical habitat and documented communities of Santa Cruz tarplant and robust spineflower; suitable habitat and documented communities of sand-loving wallflower, sandmat manzanita, Kellogg's horkelia, Monterey spineflower, white-rayed pentachaeta, and Eastwood's goldenbush; and habitat suitable for Townsend's big-eared bat and pallid bat.

Each new development project would be subject to discretionary approval and environmental review and would be required to identify adequate sources of water supply, as well as any other potential impacts on resources of concern before approval and development. Projects would be required to comply with the measures in local regulating plans that are designed to protect resources of concern, which may include, but are not limited to, the following.

- Implementing design guidelines, building height limitations and minimum setback standards, screening measures, landscaping and replanting measures, and review by local design boards to protect the visual character and scenic resources.
- Designating areas of high archaeological sensitivity and requiring reconnaissance by a qualified archaeologist and, where artifacts are identified, requiring measures that would protect and preserve such resources.
- Designating habitat reserve or other identified sensitive areas, requiring adequate buffer distances to protect sensitive habitats, minimizing the need for grading, requiring sediment control best management practices, requiring replanting with a native seed mix, and protecting or providing wildlife corridors or connections between sensitive habitat and other natural open space areas to avoid adverse impacts on biological resources.

Additionally, coordination with agencies with regulatory authority over sensitive habitats, such as the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Central Coast Regional Water Quality

Control Board for wetland and water resources, would ensure potential impacts are adequately evaluated and mitigated.

In conclusion, based on the 2018 Association of Monterey Bay Area Governments Regional Growth Forecast, review of local planning documents, and input from the expert panel, it is possible that the peak travel time savings and reduced delay that would result from the project could make certain areas that still have the potential to support future growth more appealing for residents commuting to local employment in and surrounding the city of Santa Cruz. The project could indirectly contribute to growth pressure in the cities of Watsonville and Marina and the unincorporated communities of Live Oak, Aptos, and Freedom, where future growth could occur. Within those areas, if future growth does occur and is indirectly influenced by the project, such projects would require independent environmental review, and potential impacts on resources of concern would require evaluation and mitigation, as necessary, to avoid or minimize potential impacts.

No-Build Alternative

State Route 1 would not experience any improvements under the No-Build Alternative, and delay would continue to worsen. Accessibility and transportation capacity and modes would not be improved, and no unplanned growth would occur, so there would be no growth impacts under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

The project would not result in adverse impacts related to growth within the project study area; therefore, avoidance, minimization, or mitigation measures would not be required.

References

California Department of Transportation. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project Community Impact Assessment.. February.

CDM Smith. 2021. *Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements – Freedom Boulevard to State Park Drive – and Coastal Rail Trail Segment 12 Project. FINAL Traffic Operations Analysis Report. Santa Cruz, CA.* Submitted to Santa Cruz County Regional Transportation Commission (RTC) and Caltrans District 5.

2.1.4 Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code 4331(b)(2)). The Federal Highway Administration in its implementation of NEPA (23 U.S. Code 109(h)) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

For the proposed project, the study area for community character includes the project corridor and all census tracts overlapping the project corridor. This study area includes portions of the unincorporated communities of Aptos, Rio Del Mar, and Aptos Hills-Larkin Valley. Census tracts within the project corridor include 1220.02, 1220.03, 1221, 1222.01, 1222.02, 1222.03, and 1224.

Regional Population Characteristics

The following subsections provide descriptions of regional population characteristics within the study area. The most recent data available at the census tract-level is from the 2019 American Community Survey (U.S. Census Bureau 2019).

Race and Ethnicity

Race and ethnicity demographics for Santa Cruz County and the project area census tracts are shown in Table 2-3, which shows that racial and ethnic minorities comprise approximately 42.7% of the county's population and range from 10.2–25.6% of the population of project area census tracts.

Table 2-3. Study Area Race and Ethnicity Demographics

Census Category	Santa Cruz County	Census Tract 1220.02	Census Tract 1220.03	Census Tract 1221	Census Tract 1222.01	Census Tract 1222.02	Census Tract 1222.03	Census Tract 1224	Total / Average
Total Population	273,962	3,253	7,248	3,286	6,506	2,328	3,971	7,247	33,839
White	57.3%	89.7%	74.5%	76.3%	83.9%	76.1%	81.8%	74.4%	79.5%
Black	0.9%	0.7%	0.3%	0.7%	1.3%	0.4%	0.9%	0.3%	0.7%
American Indian and Alaska Native	0.1%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Asian	4.6%	1.8%	3.3%	2.5%	3.6%	3.5%	2.2%	2.1%	2.7%
Hawaiian and Other Pacific Islander	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Some Other Race	0.2%	0.0%	0.0%	0.9%	0.0%	0.0%	0.6%	0.0%	0.2%
Two or More Races	3.2%	1.0%	5.1%	3.0%	1.9%	6.1%	3.8%	3.7%	3.5%
Hispanic	33.6%	6.7%	16.2%	16.7%	9.2%	13.9%	10.7%	19.5%	13.3%
Total Minority Population	42.7%	10.2%	25.5%	23.8%	16.0%	23.9%	18.2%	25.6%	20.5%

Source: U.S. Census Bureau 2019

Income

To evaluate income, this assessment looked at median household income and the percent of the population living below the poverty level. According to the California Department of Transportation (Caltrans) Standard Environmental Reference, *low-income* is defined as a person whose household income (or, in the case a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines. The U.S. Department of Health and Human Services' poverty guidelines are based on the U.S. Census Bureau's; therefore, the U.S. Census Bureau's poverty threshold statistics are presented in Table 2-4. The 2019 U.S. Census poverty threshold is \$26,172 for a family of four.

Table 2-4. Study Area Income Data

Census Category	Santa Cruz County	Census Tract 1220.02	Census Tract 1220.03	Census Tract 1221	Census Tract 1222.01	Census Tract 1222.02	Census Tract 1222.03	Census Tract 1224	Total / Average
Total Population	273,962	3,253	7,248	3,286	6,506	2,328	3,971	7,247	33,839
Population 16 years and over	226,982	2,742	6,048	2,776	5,747	1,941	3,244	6,602	29,100
Population in Labor Force	144,847 (63.8%)	1,840 (67.1%)	3,882 (64.2%)	1,798 (64.8%)	3,429 (59.7%)	1,161 (59.8%)	1,933 (59.6%)	3,724 (56.4%)	17,767 (61.7%)
Median Household Income	\$82,234	\$149,545	\$89,438	\$77,896	\$102,500	\$115,919	\$107,132	\$113,352	\$107,969
Percent Below Poverty Level	13.1%	4.2%	12.8%	8.3%	6.5%	6.0%	4.6%	11.3%	7.7%

Source: U.S. Census Bureau 2019.

As shown in Table 2-4, Santa Cruz County has an estimated median household income of \$82,234, with 13.1% of the population living below the poverty level. Ranging from \$77,896 to \$149,545, all but one of the study area census tracts have median household incomes above the county average. The percent of the population below the poverty level for the study area census tracts ranges from 4.2% to 13.1%, with an average of 7.7%.

Neighborhoods/Communities/Community Character

Community cohesion is the degree to which residents have a “sense of belonging” to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, generally due to continued associations over time (Caltrans 2015).

- The proposed project would pass through portions of unincorporated Santa Cruz County that include a mix of uses, including single-family residential, multifamily residential, large-scale big box commercial, low-density commercial, professional and office, agriculture, and open space. Neighborhoods in the study area are within the unincorporated area of Aptos and include Aptos Village and Seacliff Village.
- Aptos Village centers on an 8-acre area of mixed uses and includes commercial retail, office, and residential, which are pedestrian oriented and served by a peripheral road system formed by Trout Gulch Road, Soquel Drive, Hopkins Road, and an extended Granite Way. The Village’s post office and historic Hotel Bayview are important functional and visual nodes in this area. The physical scale of Aptos Village is established by existing one- and two-story developments, represented by the Village Fair and other historic buildings in the Valencia Street block, as well as the

shops and offices along the Soquel Drive ridge. The natural setting of the Village formed by the riparian corridors of Aptos, Valencia, and Trout Creek are part of the Aptos community experience. Special use areas adjacent to the Village’s 8-acre activity center provide additional commercial and residential areas.

- Seacliff Village, southwest of Aptos Village, includes a 21.3-acre commercial district situated on either side of State Park Drive, with surrounding residential neighborhoods to the east and west. This area is bounded by State Route 1 to the north and Seacliff State Beach and the Monterey Bay to the south. Primary access to Seacliff Village and Seacliff State Beach is provided by State Park Drive and local two-lane roads, which also provide views to Monterey Bay National Marine Sanctuary. The Village core is characterized by one-story commercial buildings and some two-story mixed-use buildings with ground floor commercial uses along Searidge Road and Center Street. There is one neighborhood park, Seacliff Village Park, and two churches, the Coastlands and the Episcopal Church of St. John, south and west of the State Park Drive interchange. Primary attractions in the area include Seacliff State Beach Campground and Seacliff State Beach. Currently, State Park Drive provides the only designated bikeway and there are a number of informal pedestrian pathways along road rights-of-way, within or along the edges of public properties, and some dedicated trails leftover from the formation of the Seacliff Park subdivision (County of Santa Cruz 2003).

Housing

Housing estimates for Santa Cruz County and project area census tracts are provided in Table 2-5. Household size and housing occupancy and vacancy rates vary between the project area tracts, but on average, household size for the tracts is slightly smaller than for the county as a whole and vacancy rates are somewhat higher.

All but one of the study area tracts has a higher percentage of owner-occupied units than the county average. This higher percentage of owner-occupied units indicates the presence of more long-term residents and likely increased community cohesion in the project study area.

Table 2-5. Study Area Housing Data

Census Data	Santa Cruz County	Census Tract 1220.02	Census Tract 1220.03	Census Tract 1221	Census Tract 1222.01	Census Tract 1222.02	Census Tract 1222.03	Census Tract 1224	Total/Average
Total Housing Units	106,307	1,341	2,916	1,925	3,355	973	1,811	2,744	15,065
Occupied Housing Units	90.1%	88.1%	96.1%	80.2%	78.6%	93.4%	89.7%	95.0%	88.7%
Vacant Housing Units	9.9%	11.9%	3.9%	19.8%	21.4%	6.6%	10.3%	5.0%	11.3%

Census Data	Santa Cruz County	Census Tract 1220.02	Census Tract 1220.03	Census Tract 1221	Census Tract 1222.01	Census Tract 1222.02	Census Tract 1222.03	Census Tract 1224	Total/Average
Owner Occupied	60.1%	86.6%	70.4%	58.8%	79.8%	89.7%	63.9%	80.8%	75.7%
Renter Occupied	39.9%	13.4%	29.6%	41.2%	20.2%	10.3%	36.1%	19.2%	24.3%
Average Household Size (Owner Occupied)	2.68	2.84	2.37	2.17	2.51	2.65	2.43	2.77	2.53
Average Household Size (Renter Occupied)	2.79	2.01	3.10	2.07	2.28	1.81	2.48	2.60	2.34
Total Housing Units	106,307	1,341	2,916	1,925	3,355	973	1,811	2,744	15,065

Source: U.S. Census Bureau 2019.

Population, Housing, and Employment Projections

Population, housing, and employment growth trends within Santa Cruz County are summarized in Table 2-6 and discussed below the table.

Table 2-6. 2025–2045 Population, Housing Unit, and Employment Growth

Location	2025 Population	2045 Population	% Change	2025 Housing Units	2045 Housing Units	% Change	2025 Employment	2045 Employment	% Change
Santa Cruz County	278,641	294,967	6%	109,208	113,797	4%	141,391	153,261	8%

Source: Association of Monterey Bay Area Governments 2020.

According to the Association of Monterey Bay Area Governments' 2022 Regional Growth Forecast, the population of Santa Cruz County is expected to continue growing. The county's average annual growth in population is projected to be 816 persons, resulting in a total population of 294,967 persons by the year 2045. While the county's population is expected to increase by 6%, employment is expected to increase by 8% during the same period, which suggests more employees could commute from other areas for jobs, or it could potentially reduce some commuting from Santa Cruz County to the San Francisco Bay Area. The number of housing units in the county would increase 4% between 2025 and 2045.

Environmental Consequences

Build Alternative

Auxiliary Lanes and Bus-on-Shoulder Features

The proposed improvements to State Route 1, including new sound walls, are primarily located within an existing highway right-of-way. These improvements would not result in dividing or introducing a new physical barrier between neighborhoods, nor separate residences from community facilities. The proposed auxiliary lanes and Bus-on-Shoulder features would result in reduced delay within the State Route 1 corridor, which is anticipated to have positive effects on the quality of life for communities in the study area.

As discussed in more detail in Chapter 1, *Proposed Project*, construction of the State Route 1 and Bus-on-Shoulder improvements would require permanent partial acquisitions from six properties. A maximum of approximately 2,742 square feet (0.06 acre) would be necessary for permanent partial acquisitions. No impacts on buildings, structures, driveways, or backyards are anticipated, with the exception of Assessor Parcel Number 042-066-21 at Moosehead Drive, which could result in driveway or access realignment.

Ultimate Trail Configuration

This section is revised in the final environmental document to remove two parcels that are owned in fee by Santa Cruz Regional Transportation Commission and to correct the number of acquisitions to be consistent with Table 1-2. The ultimate trail configuration (including the optional first phase, and removal of optional first phase) has the potential to enhance neighborhood cohesion by providing new pedestrian and bicycle access within the project corridor. With two new pedestrian and bicycle overcrossings of State Route 1, Coastal Rail Trail Segment 12 would support pedestrian and bicycle connections between Aptos Village and neighborhoods located on the other side of State Route 1. Because the rail trail would be located within the existing railroad right-of-way, which already divides the neighborhood, the rail trail would not divide or introduce a new physical barrier between neighborhoods, nor separate residences from community facilities.

As discussed in more detail in Chapter 1, construction of Coastal Rail Trail Segment 12 would require permanent partial acquisitions from 11 properties. A maximum of approximately 12,829 square feet (0.29 acre) would be necessary for permanent partial acquisitions. Some impacts on buildings, structures, driveways, or backyards may occur on parcels along the following roadways:

- Soquel Drive: Assessor parcel numbers 039-232-03, 039-232-02, 039-232-01, 041-561-11, and 041-052-16
- Parade Street: 041-011-42, 041-011-41

- Sandalwood Drive: 044-282-47, 044-282-48
- Moosehead Drive: 042-071-01, 042-071-02, 042-071-03, and 042-067-18

Construction of Coastal Rail Trail Segment 12 could potentially remove up to 15 parking spaces on Aptos Street in Aptos Village. This land is owned in fee by Santa Cruz Regional Transportation Commission. Coastal Rail Trail Segment 12 would, improve bicycle and pedestrian access for residents and businesses in Aptos Village. It is anticipated that the trail would be used primarily by local residents for transportation and recreation, and that most would bike or walk from their residence. For those who drive and park to access the trail, there is a parking lot with 27 spaces at Aptos Village County Park, and informal and on-street parking at various locations (e.g., throughout the commercial area along Soquel Drive, Parade Street, and residential streets).

Optional First Phase

The optional first phase has the potential to enhance neighborhood cohesion by providing new pedestrian and bicycle access within the project corridor. Coastal Rail Trail Segment 12 would support pedestrian and bicycle connections between Aptos Village and neighborhoods located on the other side of State Route 1. Because the rail trail would be located within the existing railroad right-of-way, which already divides the neighborhood, the rail trail would not divide or introduce a new physical barrier between neighborhoods, nor separate residences from community facilities.

No permanent or temporary right-of-way impacts beyond those described for the auxiliary lanes and Bus-on-Shoulder features would occur for the optional first phase. There would be no property acquisitions or displacements associated with the optional first phase. No parking would be removed.

Construction Impacts

During construction, there would be potential for construction activities to temporarily disrupt neighborhood cohesion in the vicinity of construction areas, including rail trail construction activities within Aptos Village. Temporary impacts on neighborhood cohesion are anticipated to include temporary closures of highway ramps at the Freedom Boulevard, Rio Del Mar Drive, and State Park Drive interchanges, along roadway segments in the vicinity of these interchanges, and adjacent to rail trail construction. These temporary closures may temporarily disrupt neighborhood cohesion by temporarily restricting normal traffic, pedestrian, and bicycle movement through the area; however, signage would be posted in advance of closures, and detours would be established to provide alternate routes and maintain access to all residences and businesses throughout construction. Ramp closures would be staged so that successive off- or on-ramps are not closed at the same time to minimize temporary impacts on motorists and adjacent neighborhoods.

Temporary parking restrictions may be implemented along the segments of local roads described above, resulting in temporary loss of parking in these areas, which may temporarily disrupt neighborhood cohesion by temporarily reducing the availability of parking spaces serving local residences and businesses.

Construction activities would generate dust, vehicle and equipment emissions, and noise impacts related to the operation and movement of heavy equipment, and other construction activity within the community of Aptos in the project vicinity. Slow-moving construction vehicles may temporarily contribute to traffic congestion on local roads.

Community cohesion involves many factors, some of which include businesses, homes, and activity centers. Impacts on these factors could occur when there are property acquisitions or displacements. Temporary construction easements along the State Route 1 right-of-way may be necessary for construction of retaining walls, sound walls, bridge structures, and portions of the rail trail at 25 properties. Approximately 28,775 square feet (0.66 acre) of temporary construction easements would be required along the State Route 1 right-of-way. Due to the limited number of parcels affected by permanent acquisitions, and the dispersal of the temporary impacts along the State Route 1 corridor, the overall adverse effect on neighborhood cohesion is anticipated to be limited.

Additionally, temporary construction easements along the Ultimate Trail Configuration are needed for construction of retaining walls, sound walls, bridge structures, and portions of the rail trail. Approximately 90,347 square feet (2.07 acres) of temporary construction easements would be required. Due to the limited number of parcels affected by permanent or temporary acquisitions, and the dispersal of these impacts along the rail trail corridor, the overall adverse effect on neighborhood cohesion is anticipated to be limited, in view of the benefits to neighborhood cohesion afforded by Coastal Rail Trail Segment 12, discussed above.

No-Build Alternative

The No-Build Alternative would not provide the benefits to community cohesion anticipated to be provided by Coastal Rail Trail Segment 12. Delay within the State Route 1 corridor would continue to worsen and may adversely affect the quality of life for communities in the study area. No property acquisitions, temporary construction easements, or temporary construction impacts would occur.

Avoidance, Minimization, and/or Mitigation Measures

Construction-related dust and air quality impacts are addressed by standard measures (AQ-1 through AQ-13) included in Chapter 1, *Project Description*. Construction-related noise impacts are addressed by avoidance and

minimization measures described in Section 2.2.7.4 *Noise*. Construction-related traffic impacts on neighborhood cohesion would be reduced or minimized by a Transportation Management Plan, as described in Section 2.1.7, *Traffic and Transportation/Pedestrian Bicycle Facilities*. As described in Section 1.4.1.8, *Acquisitions and Temporary Construction Easements*, permanent property acquisitions and temporary construction easements would conform to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. No additional avoidance, minimization, or mitigation measures are needed to address the impacts described above.

References

- Association of Monterey Bay Area Governments. 2020. *2022 Regional Growth Forecast*. Approved November 18. Available at: https://www.ambag.org/sites/default/files/2020-12/Final%20Draft%202022%20Regional%20Growth%20Forecast_PD_F_A.pdf. Accessed February 2021.
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- California Department of Transportation. 2015. Community Impact Assessment, Santa Cruz Route 1 High Occupancy Vehicle Tier I Corridor Analysis of High Occupancy Vehicle Lanes and Transportation System Management Alternatives and Tier II Build Project Analysis 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes and Chanticleer Avenue Pedestrian Overcrossing.
- California Department of Transportation. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project Community Impact Assessment. September.
- Terry A. Hayes and Associates, Inc. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project Air Quality Report. Final February.
- U.S. Census Bureau. 2019. *2019 American Community Survey*. Available at: <https://data.census.gov/cedsci/all?q=santa%20cruz%20county>. Accessed May 4, 2022.

2.1.5 Relocations and Real Property Acquisition

Regulatory Setting

Caltrans' Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the Relocation Assistance Program.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment

Department's Title VI Policy Statement.

Owners of private property have federal and state constitutional guarantees that their property will not be taken or damaged for public use unless they first receive just compensation. Just compensation is measured by the "fair market value" of the property to be taken. Where acquisition and relocation are proposed, the provisions of the Uniform Act, as amended, and all applicable regulations would be followed. All real property to be acquired would be appraised to determine its fair market value. An offer of just compensation, not less than the approved appraisal, would be made to each property owner. Each homeowner, renter, or business displaced as a result of the project would be given advance written notice and would be informed of eligibility requirements for relocation assistance and payments.

The area of properties proposed for partial acquisition is located along Aptos Wharf Drive and Soquel Drive on Assessor's Parcel Numbers 039-232-01, 039-232-02, and 039-232-03. These three parcels are under title to two owners. The 7992 Soquel Drive property has a 1,205-square-foot residence that was built in 1916 and does not appear to be updated. The second property comprised of 7994 and 7996 Soquel Drive contains a mixture of improvements constructed for residential and commercial uses. There is a residence (7996 Soquel Drive) with a large rectangular structure that appears to be used for housing (Apartments A and B). South of these residential units, a portion of the former commercial structure has been converted to a residential unit (Apartment C). These four units appear to be occupied (Table 2-7). According to the U.S. Census Bureau, the average number of persons per household in Santa Cruz County is 2.7 (U.S. Census Bureau 2022).

Table 2-7. Tenant Occupants of 7992, 7994, and 7996 Soquel Drive

Location	Type	Occupancy	Household Displacements
7992 Soquel Drive, Aptos, CA	House	Vacant	0
7992 Soquel Drive, Aptos, CA	Storage	Tenant	Personal Property
7994 Soquel Drive, Aptos, CA	Bungalow	Tenant	2.7 (Unit C)
7996 Soquel Drive, Aptos, CA	Apartment A	Tenant	2.7 (Unit A)
7996 Soquel Drive, Aptos, CA	Apartment B	Tenants	2.7 (Unit A)
7996 Soquel Drive, Aptos, CA	Commercial Retail Unit 1	Occupied	1 Business Displacee
7996 Soquel Drive, Aptos, CA	Commercial Retail Unit 2	Vacant	0 Business Displacees
7996 Soquel Drive, Aptos, CA	Commercial Retail Unit 3	Vacant	0 Business Displacees

Environmental Consequences

Build Alternative

Auxiliary Lanes and Bus-on-Shoulder Features

Construction of State Route 1 and Bus-on-Shoulder improvements may require the permanent partial acquisition of six properties along Aptos Wharf Road and Soquel Drive (Table 1-1). A maximum of approximately 2,742 square feet (0.06 acre) would be necessary for permanent partial acquisitions. These sliver takes would not affect any homes or businesses except Assessor Parcel Number 042-066-21, which may require driveway or access realignment.

Several properties along Moosehead Drive would require partial sliver acquisitions in order to construct the retaining wall and realign the roadway, including APNs 042-071-03, 042-071-02, 042-071-01, 042-067-17, and 042-067-16.

Additionally, temporary construction easements along the State Route 1 right-of-way may be necessary for construction of retaining walls and sound walls and for activities during construction such as contractor access. The full list of parcels that may require temporary construction easements, including those along Moosehead Drive, are listed in Table 1-1 (Chapter 1, Project Description). Approximately 28,476 square feet (0.65 acre) of temporary construction easements would be required at noise barrier locations for construction; no buildings, homes, or driveways are anticipated to be affected by temporary construction easements.

No residential or business displacements would result from construction of the State Route 1 and Bus-on-Shoulder improvements.

Ultimate Trail Configuration

This section is revised in the final environmental document to remove two parcels that are owned in fee by Santa Cruz Regional Transportation

Commission. Construction of Coastal Rail Trail Segment 12 may require the permanent partial acquisition of the 11 properties identified in Table 1-2 (Chapter 1-2, Project Description). A maximum of approximately 12,829 square feet (0.29 acre) would be necessary for permanent partial acquisitions. Some impacts on homes, driveways, buildings, or backyards may occur on parcels along Aptos Wharf Drive/Soquel Drive.

As shown in Table 1-2, approximately 61,572 square feet (1.41 acres) of temporary construction easements would be required for construction of Coastal Rail Trail Segment 12; no buildings, homes, or driveways are anticipated to be affected by temporary construction easements.

Table 2-8 provides a summary of the potential displacements associated with construction of Coastal Rail Trail Segment 12. The buildings at 7992, 7994, and 7996 Soquel Drive are located on three parcels under title to two owners. A total of six tenant households could be displaced. In November 2022, the property at 7992 Soquel Drive was placed on the open market. Santa Cruz Regional Transportation Commission contacted the broker, who also represents 7994 and 7996 Soquel Drive. The Santa Cruz Regional Transportation Commission authorized staff to enter into negotiations and conduct physical investigations related to the potential acquisition of these three properties, needed to construct the project. The Santa Cruz Regional Transportation Commission approved a purchase on the 7992 Soquel Drive property in January 2023. Based on currently available information, no businesses would be displaced. All residential units are occupied by renters; there are no owner-occupied units.

Table 2-8. Displacements Associated with 7992, 7994 and 7996 Soquel Drive

Assessor's Parcel Number	Street Address	Type	Household Displacements
039-232-03	7992 Soquel Drive, Aptos	House	0 (vacant)
039-232-03	7992 Soquel Drive, Aptos	Storage	Personal Property
039-232-02	7994 Soquel Drive, Aptos	Bungalow	2.7 (Unit C)
039-232-01	7996 Soquel Drive, Aptos	Apartment A	2.7 (Unit A)
039-232-01	7996 Soquel Drive, Aptos	Apartment B	2.7 (Unit A)
039-232-01	7996 Soquel Drive, Aptos	Commercial Retail Unit 1	1 Business Displacee
039-232-01	7996 Soquel Drive, Aptos	Commercial Retail Unit 2	0 Business Displacees
039-232-01	7996 Soquel Drive, Aptos	Commercial Retail Unit 3	0 Business Displacees

Source: Monument 2022

As shown in Table 2-7, a total of three residential units could be relocated. The average household size for renter-occupied housing in the study area is 2.7 (U.S. Census Bureau 2022). Therefore, it is estimated that 9 residents would be relocated. There are 106,307 housing units in the study area, with

an occupancy rate of 90.1%, which translates into approximately 95,783 occupied housing units in the study area. The three residential relocations therefore represent less than 0.01% of the occupied housing units in the study area.

Optional First Phase

No permanent or temporary right-of-way impacts beyond those described for the auxiliary lanes and Bus-on-Shoulder features would occur for the optional first phase. There would be no residential or business displacements associated with the optional first phase.

No-Build Alternative

No property acquisitions or relocations would occur under the No-Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

The housing market analysis conducted for the proposed project's Relocation Impact Memorandum included sampling from 55 apartment rentals and 18 house rentals listed on Craig's List and 120 rentals on Realtor.com for available houses, apartments, mobile homes, and condominiums. The analysis found that, in general, there is sufficient decent, safe, and sanitary housing available to meet the needs of the potential displacees. The following measures would be implemented to address relocation impacts:

- The Caltrans Relocation Assistance Program would be applied to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons do not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole (see Appendix B for a summary of the Relocation Assistance Program).
- Relocation services and benefits would be administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (See Appendix A, Caltrans' Title VI Policy Statement).

References

Monument. 2022. *State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements – Freedom Boulevard to State Park Drive – and Coastal Rail Trail Segment 12. Relocation Impact Memorandum.* Sacramento, CA. Prepared for Mark Thomas.

U.S. Census Bureau 2022. *2019 American Community Survey.* Available at: <https://www.census.gov/quickfacts/fact/table/santacruzcountyarizona,santacruzcountycalifornia,US/HSD310221>. Accessed February 13, 2023.

U.S. Census Bureau 2019. *2019 American Community Survey*. Available at: <https://data.census.gov/cedsci/all?q=santa%20cruz%20county>. Accessed May 4, 2022.

2.1.6 Utilities/Emergency Services

Affected Environment

Utilities

Electricity and Natural Gas

Pacific Gas and Electric Company provides electric and gas service to the project area.

Water Supply

In Santa Cruz County, domestic water supply is derived from local surface water (streams and reservoirs: 20% of supply) and groundwater (80% of supply), which are fed entirely by precipitation and do not receive any imported water. Most stream water used is diverted from the San Lorenzo River Watershed, North Coast streams, and Corralitos Creek. There are three major groundwater basins in the county: the Santa Margarita, Santa Cruz Mid-County, and Pajaro. The project area is served by the Soquel Creek Water District (County of Santa Cruz 2021).

Wastewater

The Santa Cruz County Sanitation District runs and maintains a sewer collection/maintenance system for the communities of Live Oak, City of Capitola, and portions of Aptos and Soquel. The Santa Cruz County Sanitation District maintains pipelines transporting waste from the District to the Santa Cruz City Wastewater Treatment Facility, located at Neary Lagoon (Santa Cruz County Sanitation District n.d.).

Solid Waste

Solid waste collection, recycling, and yard waste disposal are provided by GreenWaste Recovery, Inc. through franchise agreements with the County of Santa Cruz. The County of Santa Cruz operates two solid waste facilities: the Buena Vista Landfill west of Watsonville and the Ben Lomond Transfer Station near the town of Ben Lomond.

Telecommunications

Telecommunications service to the project area is provided by AT&T and the main cable service provider is Comcast. These companies generally add improvements or relocations as the need arises to meet customer demand.

Emergency Services

Santa Cruz County Sheriff's Department

The Santa Cruz County Sheriff's Office serves unincorporated Santa Cruz County and has a Sheriff's Center located at 19 Rancho Del Mar near the

western part of the project area and a County of Santa Cruz Aptos/La Selva Sheriff's Service Center located in Aptos Village at 171 Aptos Village Way. The Sheriff's Office is divided into three bureaus: Administration, Corrections, and Operations. The Sheriff's Office is comprised of 11 service areas with deputies assigned to certain parts of the county during each shift. The Sheriff's Office receives around 110,000 calls for service annually (Santa Cruz County Sheriff's Office 2020).

California Highway Patrol

The California Highway Patrol Coastal Division operates 11 area offices, one resident post, two commercial vehicle inspection facilities, and three communication/dispatch centers staffed by approximately 700 uniformed and non-uniformed employees. The Coastal Division patrols more than 325 miles of incorporated and unincorporated interstate highways, and unincorporated roadways along the Central Coast (California Highway Patrol 2021). California Highway Patrol's closest office to the project site is at 10395 Soquel Drive near the eastern limits of the project area.

Central and Aptos-La Selva Fire Protection Districts

The Central and Aptos-La Selva Fire Protection Districts provide fire protection and emergency medical services to the unincorporated areas of Soquel and Aptos, portion of the project area. Of the seven stations, the station nearest the project site is Station 2 at 300 Bonita Drive, just east of Rio Del Mar Boulevard and south of State Route 1. Fire and emergency personnel respond to approximately 3,202 calls each year within the District boundaries. The District participates in the state mutual aid response system upon request of the California Emergency Management Agency.

Central Fire District also provides first response advanced life support paramedic services to Capitola City and the unincorporated areas of Soquel, Live Oak, Aptos, Rio Del Mar, and La Selva Beach in Santa Cruz County. The District operates several fully equipped advanced life support fire apparatuses with seven being fully staffed 24 hours a day, 365 days a year with a minimum of one paramedic and two emergency medical technicians. The District is a participant in master mutual aid in the event of major disasters (Central Fire District 2021).

Environmental Consequences

Build Alternative

Auxiliary Lanes and Bus-on-Shoulder Features

Utilities

Existing utilities located in areas subject to construction that conflict with the proposed improvements would be relocated as needed. Construction of the

new State Route 1 bridge over Aptos Creek and Spreckels Drive is anticipated to require the relocation of an electric utility pole near Moosehead Drive, and the overhead electric, telecommunication, and cable lines, relocation of one joint use pole on Aptos Wharf Road, as well as a sanitary sewer line near Moosehead Drive.

These temporary impacts could potentially result in a temporary interruption of utilities service. However, construction activities would not cause a substantial increase in the existing demand for electricity or require the development of new sources. No impacts on local solid waste facilities are anticipated.

Ground disturbance for the relocations and grade adjustments would be within the limits of disturbance needed for the proposed project. Utility relocations and grade adjustments would be conducted prior to or during construction. Early notification of utility service and communications providers would ensure that patrons are notified prior to any temporary loss of service.

Water use would be limited to dust control during construction and would be imported by the contractor. Irrigation for highway planting may be required and will be determined in the permitting phase. Water use for irrigation for highway planting would be similar to current conditions.

Emergency Services

During construction, short-term lane closures could be necessary on local streets, as described in Section 1.4.1.5, *Construction Activities*. Temporary closures have the potential to adversely affect access to and from Aptos/La Selva Fire Station Number 2, the California Highway Patrol Santa Cruz Area office, and the Santa Cruz County Sheriff's Center. Access and circulation would change in the project area during construction and postconstruction. Depending on the direction of travel of emergency service providers, the route could be shorter or longer. Implementation of the Transportation Management Plan, described in Section 2.1.7, would ensure that construction activities would not create major delays for emergency service providers and other roadway users. In addition, emergency service providers would be notified as early as possible to plan for lane closures and other delays related to construction activity.

In addition, the long-term effect of the Build Alternative would be to reduce delay and thereby enhance accessibility to the greater State Route 1 project area, which would benefit the response times for emergency service providers. The Build Alternative would improve merging operations, reduce conflicts between traffic entering and exiting State Route 1, and would provide Bus-on-Shoulder facilities, which would also allow emergency service providers to better respond to emergencies while using State Route 1 in this area.

Ultimate Trail Configuration

Utilities

Existing utilities in areas subject to construction that conflict with the proposed improvements would be relocated as needed. This is anticipated to include sanitary sewer and electric utility poles adjacent to Moosehead Drive and a gas line along the Coastal Rail Trail Segment 12 route for the ultimate trail improvements, and other utility appurtenances. Preliminary design information indicates that relocations of utilities would be required, including the relocation of an electric utility pole and gas line at Aptos Street along the rail trail alignment and at Aptos Wharf Road, as well as the overhead electric line. Rail trail construction may potentially require the relocation of a water line near Aptos Creek Road and telephone line on Soquel Drive in the vicinity of Parade Street.

These temporary impacts could potentially result in a temporary interruption of service of the aforementioned utilities. However, construction activities would not cause a substantial increase in the existing demand for electricity or require the development of new sources. No impacts on local solid waste facilities are anticipated.

Emergency Services

Construction of the ultimate trail configuration would include the trail segment, which would include a new at-grade trail connection to Sumner Avenue. Temporary impacts from construction equipment or lane closures on Sumner Avenue would be reduced through the Transportation Management Plan and advance notice given to emergency service providers.

Optional First Phase

Utilities

Under the optional first phase, impacts on utilities and emergency services would be fewer than those described under the ultimate trail configuration as no utility relocations would be required.

Emergency Services

Construction of the optional first phase of the trail would include some construction near State Route 1 for new trail bridge crossings at two locations and removal of existing railroad bridges over the highway. These activities could require short-term lane closures as described in Chapter 1, *Proposed Project*. Temporary closures could adversely affect emergency services through State Route 1. However, as described above for the auxiliary lanes and Bus-on-Shoulder features, the same Transportation Management Plan described in Chapter 1 would ensure that construction activities would not create major delays for emergency service providers and other roadway

users. Emergency service providers would be notified as early as possible to plan for lane closures and other delays related to construction activity.

No-Build Alternative

Under the No-Build Alternative, no direct, permanent, or temporary impacts on community facilities or emergency services would occur; however, traffic delay within the project area would continue to worsen, resulting in indirect adverse impacts related to access to community facilities and service provider response times. No utilities would be relocated, interrupted, or displaced and no impacts would be anticipated to occur.

Avoidance, Minimization, and/or Mitigation Measures

Standard Measure TR-1 (Chapter 1, Project Description) as well as the following avoidance and minimization measure would reduce potential short-term impacts during construction. No long-term impacts would occur; therefore, no additional avoidance, minimization, or mitigation measures would be required for operation.

- **AMM-UTI-1:** At least 30 days prior to construction activities that would require relocation of existing utilities, affected utility service providers will be notified of all affected utilities to ensure affected customers will be notified in advance by their service providers of potential service interruptions and to ensure that all utilities are relocated appropriately.

References

California Highway Patrol. 2021. Coastal Division. Available: <https://www.chp.ca.gov/Find-an-Office/Coastal-Division>. Accessed: November 22, 2021.

Central Fire District. 2021. EMS. Available: <https://www.centralfiresc.org/2183/EMS>. Accessed: November 22, 2021.

County of Santa Cruz. 2021. Santa Cruz County Major Water Purveyors. Environmental Health Department. Available: <http://scceh.com/Home/Programs/WaterResources/WaterSupply/MajorWaterSuppliersorPurveyors.aspx>. Accessed: November 23, 2021.

Santa Cruz County Sanitation District. n.d. Home. Available: <https://sccsd.wpcomstaging.com/>. Accessed: November 23, 2021.

Santa Cruz County Sheriff's Office. 2020. Annual Report. Santa Cruz, CA.

2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 Code of Federal Regulations 27) implementing Section 504 of the Rehabilitation Act (29 United States Code 794). The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including transportation enhancement activities.

Caltrans has prepared the Transportation Analysis Framework and Transportation Analysis under CEQA to guide transportation impact analysis for projects on the State Highway System as part of the CEQA process. Caltrans has prepared these documents to guide implementation of Senate Bill 743 (Steinberg, 2013). The Transportation Analysis Framework provides guidance as to the methodology to be used in measuring the vehicle miles traveled impacts for projects on state highways.

According to the Transportation Analysis Framework, “addition of an auxiliary lane of less than one mile in length designed to improve roadway safety” is considered a project type “Not Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel”. The project has four segments of auxiliary lanes, two in each travel direction. All of these segments are less than one mile in length, which means that it is exempt under the Transportation Analysis Framework and Transportation Analysis under CEQA guidelines. In addition, these auxiliary lanes are independent, meaning that they are not continuous through interchange areas. Their purpose is to improve operations and safety in the areas between interchanges. The mainline capacity of the freeway at the interchanges is unchanged by the project, which limits the type of time savings benefits to through traffic that could generate added vehicle miles traveled. However, as vehicle miles traveled management is a subject of considerable interest to the Santa Cruz County Regional Transportation

Commission, this document includes both qualitative and quantitative information on the likely vehicle miles traveled impacts of the project.

Affected Environment

This section was prepared using information from the Community Impact Assessment in September 2022 (Caltrans 2022) and Traffic Operations Analysis Report prepared for the project in March 2021 (CDM Smith 2021), as well as analysis conducted for the Senate Bill 1 Trade Corridor Enhancement Program grant application support (CDM Smith 2022).

Access, Circulation, and Parking

The Federal Highway Administration directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans and the Federal Highway Administration are committed to carrying out the Americans with Disabilities Act by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

This section describes the existing and planned transportation system within the study area, including the roadway network, transit services, and bicycle and pedestrian facilities, as discussed in the following subsections.

Roadway Network and Circulation

The roadway network and circulation in the project area are shown on Figure 2-3 and described in the following subsections.

State Route 1

State Route 1 is the state route connecting the coastal communities on the northern and central California coast. It varies between a two-lane highway in rural areas of the coast to multiple lanes in urban areas. In the project area, it is a four-lane freeway (two lanes in each direction) with average annual daily traffic from approximately 66,000 at the southern project limit near Freedom Boulevard to approximately 80,200 at the northern limit near State Park Drive (Caltrans 2019). North and west of the project area, it connects with State Route 17 and State Route 9 and traverses the city of Santa Cruz on city streets before becoming a two-lane highway along the coast north of Santa

Cruz. South of the project area, State Route 1 is a six-lane freeway through Watsonville, returning to a two-lane highway in northern Monterey County.

Soquel Drive

Soquel Drive is the main parallel route to State Route 1 in the study area. It lies north of the highway and runs for about 2.35 miles within the project limits, starting in the west at its intersection with State Park Drive and ending at Freedom Boulevard at the eastern end of the study area. East of State Park Drive, Soquel Drive is primarily an access road for State Route 1.

Rio Del Mar Boulevard

Rio Del Mar Boulevard provides the primary access route from State Route 1 to the community of Rio Del Mar. It runs north–south for 1.4 miles as a two-lane road from Beach Drive (private road) to Soquel Drive.

State Park Drive

State Park Drive, less than 1 mile long, is a short two-lane road providing access from State Route 1 to Seacliff Beach State Park to the south and Soquel Drive to the north. Its heavy volumes are a function of its connection with Soquel Drive and the Rancho Del Mar Shopping Center.

Parking

On-street and off-street parking are available throughout the project area, including on-street parking on various commercial and residential streets. The Initial Study for the Aptos Village Plan (County of Santa Cruz 2009) identified approximately 140 on-street spaces and about 375 spaces in parking lots for a total of about 515 spaces in the 35-acre Aptos Village Plan area. The Aptos Village Square shopping center at 7960 Soquel Drive, located just north of State Route 1 outside of the Aptos Village Plan area, has approximately 350 off-street spaces; the park-and-ride lots at Resurrection Church on Soquel Drive near State Park Drive have a combined 73 spots; and Rancho Del Mar Shopping Center, just east of the State Park Drive interchange, has approximately 500 spaces (Caltrans 2015).

Public Transportation

The transit network in the project area is shown on Figure 2-4, and available public transportation is described in the following subsections.

Santa Cruz Metropolitan Transit District

The Santa Cruz Metropolitan Transit District is the primary transit provider in Santa Cruz County. Santa Cruz Metropolitan Transit District operates one urban collector, one express, and two urban local bus feeder routes in the study area. These routes primarily serve local travel with the express route providing service to the cities of Santa Cruz and Watsonville.

The Santa Cruz Metropolitan Transit District routes serving the State Route 1 corridor are briefly described below.

Route 91X, Cabrillo Express

This bus line originates at the Santa Cruz Metropolitan Transit District Center in downtown Santa Cruz and terminates at the Watsonville Center near downtown Watsonville. Within the study area, this line serves the two park-and-ride lots at Resurrection Church and commercial shopping areas along Soquel Drive. Route 91 uses State Route 1 northbound and southbound between Santa Cruz and Watsonville. The one stop within the project area is located near Aptos Branch Library on Soquel Drive.

Route 55, Mid-County Service

Route 55 serves the areas of Capitola, Aptos, and Rio Del Mar. The bus line originates in the Capitola Mall and terminates in the Rio Del Mar area. This route includes numerous stops along Center Avenue, Rio Del Mar Boulevard, Clubhouse Drive, and Sumner Drive.

Route 69W, Capitola/Cabrillo

Route 69W originates at the Santa Cruz Metropolitan Transit District Center in the city of Santa Cruz and terminates at the Watsonville Center. Within the study area, Route 69W serves the two park-and-ride lots at Resurrection Church and commercial shopping areas along Soquel Drive. The one stop within the project area is located near Aptos Branch Library on Soquel Drive.

Route 71, Soquel/Freedom

Route 71 originates at the Santa Cruz Metropolitan Transit District Center in the city of Santa Cruz and terminates at the Watsonville Transit Center. Within the study area, Route 71 serves areas throughout the area of Aptos, including two park-and-ride lots at Resurrection Church and commercial shopping areas (e.g., Rancho Del Mar Shopping Center) along Soquel Drive, and commercial areas throughout the corridor within Aptos.

Santa Cruz Metropolitan Transit District ParaCruz

The Santa Cruz Metropolitan Transit District also offers shared ride, door-to-door paratransit service as a complement to its regular fixed-route bus service. The Santa Cruz Metropolitan Transit District ParaCruz service is available to anyone certified as unable to use regular fixed-route service as a result of a disability. The Santa Cruz Metropolitan Transit District ParaCruz service is offered to any location within 0.75 mile of any regular Santa Cruz Metropolitan Transit District bus route, other than State Route 17 express commuter service.

Pedestrian and Bicycle Facilities

The Santa Cruz County Planning Department's Master Plan of Countywide Bikeways defines a countywide network of bikeways that complements the bikeway systems of local cities and adjacent counties. The bikeway network is made up of three types of facilities:

1. Class I bikeways (bike paths), which provide a separated right-of-way for the exclusive use of bicycles and pedestrians.
2. Class II bikeways (bike lanes), which provide a striped lane for one-way travel on a street or highway.
3. Class III bikeways (bike routes), which provide for shared use with pedestrian or motor vehicle traffic.

There are currently limited opportunities for pedestrians and bicyclists to safely cross State Route 1 in the project area, even though portions of the project area are designated as regional bicycle routes.

Bicycle Facilities

Many of the county's major collector and arterial roadways have, over the years, been established as Class II bikeways (bike lanes) with a focus on developing bicycle facilities in the higher-density urban areas and urban corridors of the county. There are few Class I bikeways (bike paths) in the county. Currently, Santa Cruz County has approximately 92 miles of bike lanes and 8 miles of bike paths. Bicycle facilities present within the project area are shown on Figure 2-5.

A number of the streets within the project area are equipped with Class II bicycle lanes, including State Park Drive between Soquel Drive and Center Avenue, Soquel Drive from State Park Drive to Freedom Boulevard, and Trout Gulch Road beginning at Soquel Drive. Class III bicycle lanes are also provided primarily south of State Route 1 on portions of State Park Drive, Las Olas Drive, Rio Del Mar Boulevard, Clubhouse Drive, Sumner Avenue, and Freedom Boulevard, allowing bicyclists to share the road with traffic. Existing options for crossing State Route 1 include a dedicated lane on State Park Drive and shared lanes on Rio Del Mar Boulevard and Freedom Boulevard.

Pedestrian Facilities

The existing pedestrian network includes sidewalks and foot paths throughout Aptos Village (e.g., Soquel Drive, Aptos Street, Trout Gulch Road) north of State Route 1, in Seacliff Village (e.g., State Park Drive, Center Avenue) south of State Route 1, and at the terminus of Rio Del Mar Boulevard, Venetian Road, and Aptos Beach Road near Rio Del Mar Beach. Foot paths also exist along the continuous stretch of Seascapes State Beach and Rio Del Mar State Beach. The State Park Drive overcrossing has a sidewalk with protective railings to enable pedestrian access across State Route 1;

however, the Rio Del Mar Boulevard and Freedom Boulevard overcrossings have narrower sidewalks without any protective railings for safe pedestrian passage.

Residents of Aptos value maintaining and enhancing a pedestrian-friendly environment. Central to the design concept for Aptos Village is the creation and development of a pedestrian zone in the Village core that would connect residents with recreational opportunities in the region. Included in the *Aptos Village Plan* (County of Santa Cruz 2010) were proposals to construct a sea/mountain trail to run between the Forest of Nisene Marks and Seacliff State Beach along the Aptos Creek corridor, as part of the Santa Cruz Mountain Trail System, and to require a pedestrian orientation for development and revitalization within the Village. Existing pedestrian facilities are shown on Figure 2-5.

Methodology

The Traffic Operations Analysis Report's operational analysis evaluated existing conditions in the year 2019 and future traffic conditions for the years 2025 and 2045. The year 2019 was used for existing conditions because 2020 traffic volumes were heavily influenced by the impacts of COVID-19, and therefore the year 2019 represents the most accurate baseline. At the time of the NOP, the project was scheduled to be completed in 2025; therefore, the operational analysis uses the year 2025 to analyze traffic in the project's opening year. The operational analysis also evaluated conditions in the year 2045 to reflect an estimated 20-year design life for the project, representing the project's horizon year.

Traffic operations were analyzed using multiple performance measures. A corridor-wide operational performance summary (including the freeway mainline segments within the project limits and upstream of the project limits) assessed traffic conditions in terms of model volumes in vehicles per hour, vehicle miles traveled, density, average speed, vehicle hours traveled, and delay. Vehicle miles traveled estimates in the Traffic Operations Analysis Report are on the State Route 1 corridor only and not countywide estimates. The project's senate bill 743 regulation-related CEQA determination (Section 3.2.17) cannot be completed using the vehicle miles traveled estimates included in the Traffic Operations Analysis Report, they are for informational use only.

The Traffic Operational Analysis Report also does not contain information on Coastal Rail Trail Segment 12 Project element, and the Traffic Operational Analysis Report is not a comprehensive analysis of vehicle miles traveled for the project as a whole. For these reasons, this environmental impact report/environmental assessment includes additional traffic analysis (CDM Smith 2023) to provide a more comprehensive and representative view of VMT impacts. The additional traffic analysis provided: (a) quantified demand, operational, safety and health benefits information related to Coastal Rail Trail

Segment 12 Project element that adds to the purpose and needs of the Project; and (b) countywide vehicle miles traveled changes due to the project that supports the project's SB 743 regulation-related CEQA determination (Section 3.2.17).

Level of Service: Level of Service is an indicator of the operating performance of a roadway. It rates congestion and varies on a scale from Level of Service A to Level of Service F, where Level of Service A represents free-flow operations at free-flow speeds and Level of Service F, a roadway is considered over capacity and operates at forced-flow, jammed conditions. Per Caltrans' criteria, to indicate a satisfactory operating condition, the traffic analysis used Level of Service D or better (Level of Service A, B, C, or D) and an average speed of 45 miles per hour higher during the peak period analysis. A type of traffic model, FREQ, was used to analyze the freeway performance in terms of Level of Service and average speed under each scenario.

Vehicle Miles Traveled: Vehicle miles traveled represents the number of miles traveled by a vehicle or group of vehicles; this measurement can be narrowed to miles traveled on a specific roadway. A comparison of a roadway's vehicle miles traveled at a peak traffic period with its vehicle miles traveled at a time period with free-flow speed enables an analysis of traffic congestion.

Vehicle Hours Traveled: Measurement of vehicle hours traveled enables analysis of traffic congestion by multiplying the number of vehicles by the travel time of those vehicles on a given segment of a roadway. Vehicle hours traveled is an indicator of how additional travel demand influences congestion in the system from a travel time standpoint. It is commonly used as a system-wide measurement of travel demand.

Vehicle hours of delay: Delay reflects one vehicle stuck in traffic for one hour.

Density: Density is measured as vehicles per mile per lane.

Volume: Volume is measured as vehicles per hour.

Delay per vehicle: Delay per vehicle is measured in minutes per vehicle.

Existing (2019) Traffic Operations

The Traffic Operations Analysis Report (CDM Smith 2021) estimated existing weekday AM and PM period and daily total traffic volumes using the latest available Caltrans 7-day hourly mainline and ramp traffic counts and growth trend in average annual daily traffic data. Santa Cruz County Regional Transportation Commission's October 2016 weekday 15-minute interval mainline traffic counts were used to estimate 15-minute interval volumes. Hourly speeds and travel time estimates on the State Route 1 mainline

segments in the project limits were collected using Caltrans Performance Measurement System in the Fall of 2019 and Santa Cruz County Regional Transportation Commission's September 2016 INRIX speed and travel time data collected in a prior traffic study.

Tables 2-9 through 2-18 summarize existing traffic operations on State Route 1 in the project corridor. The tables and additional analysis in the Traffic Operations Analysis Report demonstrate that State Route 1 traffic volumes for the peak periods and peak directions. Peak periods are the time of day with the most traffic. The AM peak period in the project corridor is 6:00 a.m. to 12:00 p.m., and the peak hour is 7:00 a.m. to 8:00 a.m. The PM peak period is 2:00 p.m. to 8:00 p.m. and the peak hour is 4:00 p.m. to 5:00 p.m. The peak directions are northbound AM and southbound PM.

Supplemental traffic analysis found that the existing bike/pedestrian circulation route between Rio Del Mar community and Aptos activity centers is highly circuitous and strongly discourages walking as a transportation mode option for this movement. There is a need for a straighter and more direct bike/pedestrian connection crossing the State Route 1 (CDM Smith 2023).

The Traffic Operations Analysis Report estimated 156 collisions per year (both directions combined) on average exist on State Route 1 within the project limits. On the mainline segments, fatal plus injury collision rates are higher than the statewide average, on two out of fourteen ramps, the total collision rate is higher than the statewide average, and on two out of fourteen ramps, fatal and injury collision rates are higher than the statewide average. On average 68 percent of the collisions on all State Route 1 northbound mainline segments are rear-end type; while on the State Route 1 southbound mainline segments this is 39 percent on average. Sideswipe incidents form approximately 10 percent of the collisions on the mainline in both directions of State Route 1. Collisions at all three interchanges are mainly rear-end type. Some of these types of collisions may be attributed to the lack of auxiliary lanes (CDM Smith 2021).

Additional traffic analysis found just over 10 vehicle and active transportation (bike or pedestrian) involved fatal or injury collisions per year on average exist on local streets in the project influence area. The construction of a protected bike/pedestrian facility has the potential to eliminate these type of collisions (CDM Smith 2023).

A supplemental traffic analysis estimated existing countywide daily vehicle miles traveled using 2015 countywide vehicle miles traveled from the Santa Cruz County Regional Transportation Commission's Unified Corridor Investment Study completed in January 2019 and Association of Monterey Bay Governments 2022 Regional Growth Forecast based population projections. Based on this, 5,477,870 vehicle miles of travel are estimated in Santa Cruz County on a daily basis (CDM Smith 2023).

Table 2-9. Estimated Weekday Volumes (in vehicles) by State Route 1 Northbound Mainline Segments and Ramps within the Project Limits

Location	AM Peak Period	AM Peak Hour	PM Peak Period	PM Peak Hour	Daily
Mainline	18,900	3,335	14,190	2,785	47,800
On-Ramps	11,350	2,470	8,910	1,490	26,200
Off-Ramps	5,840	1,130	6,090	1,110	15,300

Source: CDM Smith 2021

Table 2-10. Estimated Weekday Volumes (in vehicles) by State Route 1 Southbound Mainline Segments and Ramps within the Project Limits

Location	AM Peak Period	AM Peak Hour	PM Peak Period	PM Peak Hour	Daily
Mainline	15,580	3,070	19,690	3,890	47,000
On-Ramps	5,110	1,250	6,960	1,290	15,500
Off-Ramps	7,070	1,090	10,400	1,750	24,300

Source: CDM Smith 2021

Table 2-11. Summary of Northbound AM Existing (2019) Traffic Operational Performance within Corridor Limits

Performance Measure	Operational Performance
Peak Hour Volume (Vehicles/hour)	3,270
Peak Period Volume (Vehicles/hour)	3,142
Peak Hour Vehicle Miles Traveled	16,840
Peak Period Vehicle Miles Traveled	97,070
Peak Hour Vehicle Hours Traveled	590
Peak Period Vehicle Hours Traveled	2,747
Peak Hour vehicle hours of delay	318
Peak Period vehicle hours of delay	1,181
Peak Hour Density	57.2
Peak Period Density	44.4
Peak Hour Level of Service	F
Peak Period Level of Service	E
Peak Hour Average Speed	29
Peak Period Average Speed	35
Peak Hour Delay (minutes/vehicle)	5.8
Peak Period Delay (minutes/vehicle)	3.8

Source: CDM Smith 2021.

Table 2-12. Summary of Northbound PM Existing Traffic Operational Performance within Corridor Limits

Performance Measure	Operational Performance
Peak Hour Volume (Vehicles/hour)	2,822
Peak Period Volume (Vehicles/hour)	2,400
Peak Hour Vehicle Miles Traveled	14,535
Peak Period Vehicle Miles Traveled	74,149
Peak Hour Vehicle Hours Traveled	235
Peak Period Vehicle Hours Traveled	1,200
Peak Hour vehicle hours of delay	0
Peak Period vehicle hours of delay	4
Peak Hour Density	22.8
Peak Period Density	19.4
Peak Hour LOS	C
Peak Period LOS	C
Peak Hour Average Speed	62
Peak Period Average Speed	62
Peak Hour Delay (minutes/vehicle)	0.0
Peak Period Delay (minutes/vehicle)	0.0

Source: CDM Smith 2021.

Table 2-13. Summary of Southbound AM Existing Traffic Operational Performance within Corridor Limits

Performance Measure	Operational Performance
Peak Hour Volume (Vehicles/hour)	3,042
Peak Period Volume (Vehicles/hour)	2,873
Peak Hour Vehicle Miles Traveled	28,896
Peak Period Vehicle Miles Traveled	163,737
Peak Hour Vehicle Hours Traveled	486
Peak Period Vehicle Hours Traveled	2,738
Peak Hour vehicle hours of delay	14
Peak Period vehicle hours of delay	54
Peak Hour Density	24
Peak Period Density	22.4
Peak Hour Level of service	C
Peak Period Level of service	C
Peak Hour Average Speed	59
Peak Period Average Speed	60
Peak Hour Delay (minutes/vehicle)	0.2
Peak Period Delay (minutes/vehicle)	0.2

Source: CDM Smith 2021.

Table 2-14. Summary of Southbound PM Existing Traffic Operational Performance within Corridor Limits

Performance Measure	Operational Performance
Peak Hour Volume (Vehicles/hour)	3,470
Peak Period Volume (Vehicles/hour)	3,391
Peak Hour Vehicle Miles Traveled	32,962
Peak Period Vehicle Miles Traveled	193,281
Peak Hour Vehicle Hours Traveled	1419
Peak Period Vehicle Hours Traveled	6,045
Peak Hour vehicle hours of delay	877
Peak Period vehicle hours of delay	2872
Peak Hour Density	66.7
Peak Period Density	48.6
Peak Hour Level of service	F
Peak Period Level of service	F
Peak Hour Average Speed	23
Peak Period Average Speed	32
Peak Hour Delay (minutes/vehicle)	15.2
Peak Period Delay (minutes/vehicle)	8.5

Source: CDM Smith 2021.

Table 2-15. Existing Level of Service in the State Route 1 Northbound Direction by Mainline Segment and Time Period

Mainline Segment	AM Peak Period Level of service	PM Peak Period Level of service
South of Larkin Valley Road off	C	B
Larkin Valley Road off – on	D	B
Larkin Valley Road on - Freedom Boulevard off	F	C
Freedom Boulevard off – on	F	B
Freedom Boulevard on - Rio Del Mar Boulevard off	F	C
Rio Del Mar Boulevard off – on	F	B
Rio Del Mar Boulevard on - State Park Drive off	F	C
State Park Drive off - northbound State Park Drive on	F	B
Northbound State Park Drive on - southbound State Park Drive on	F	C
Southbound State Park Drive on - Park Avenue off	F	C
Corridor Limits: State Route 1 northbound direction from Larkin Valley Road/San Andreas Road to Park Avenue, and in State Route 1 southbound direction from State Route 17 to Larkin Valley Road/San Andreas Road	E	C

Source: CDM Smith 2021.

Table 2-16. Existing Level of Service in the State Route 1 Southbound Direction by Mainline Segment and Time Period

Mainline Segment	AM Peak Period Level of service	AM Peak Period Level of service
North of Ocean Street on	B	C
Ocean Street on - State Route 17 on	C	D
State Route 17 on - Fairmount Avenue off	C	D
Fairmount Avenue off ramp to on ramp -	B	E
Fairmount Avenue on ramp - Morrissey Boulevard on ramp	B	F
Morrissey Boulevard on ramp - Soquel Drive off ramp	C	F
Soquel Drive off ramp – on ramp	C	F
Soquel Drive on ramp - 41st Avenue off ramp	D	F
41st Avenue off ramp - southbound 41st Avenue on ramp	C	F
southbound 41st Avenue on ramp - northbound 41st Avenue on ramp	C	F
northbound 41st Avenue on ramp - Bay Avenue/Porter Street off ramp	C	F
Bay Avenue/Porter Street off ramp – on ramp	D	F
Bay Avenue/Porter Street on ramp - Park Avenue off ramp (merge area)	D	F
Bay Avenue/Porter Street onramp - Park Avenue off ramp (diverge area)	D	F
Park Avenue off ramp – on ramp	C	F
Park Avenue on ramp- State Park Drive off ramp	C	E
State Park Drive off ramp - southbound State Park Drive on ramp	C	F
southbound State Park Drive on ramp - northbound State Park Drive on ramp	C	E
northbound State Park Drive on ramp - Rio Del Mar Boulevard off ramp	C	D
Rio Del Mar Boulevard off ramp – on ramp	C	D
Rio Del Mar Boulevard on ramp - Freedom Boulevard off ramp	C	D
Freedom Boulevard off ramp – on ramp	C	C
Freedom Boulevard on ramp - Larkin Valley Road off ramp	C	C
Corridor Limits: State Route 1 northbound direction from Larkin Valley Road/San Andreas Road to Park Avenue, and in State Route 1 southbound direction from State Route 17 to Larkin Valley Road/San Andreas Road	C	F

Source: CDM Smith 2021, Table 5-8.

Table 2-17. Existing Estimated Daily Vehicle Miles Traveled, Vehicle Hours Traveled and vehicle hours of delay in the State Route 1 Northbound Direction

Performance Measure / Unit	Existing
Daily Vehicle Miles Traveled	247,330
Daily Vehicle Hours Traveled	5,170
Daily Vehicle Hours of Delay	1,190

Source: CDM Smith 2021. Table 5-9.

Table 2-18. Existing Estimated Daily Vehicle Miles Traveled, Vehicle Hours Traveled and vehicle hours of delay in the State Route 1 Southbound Direction

Performance Measure / Unit	Existing
Daily Vehicle Miles Traveled	475,750
Daily Vehicle Hours Traveled	10,730
Daily Vehicle Hours of Delay	2,930

Source: CDM Smith 2021.

Environmental Consequences

Build Alternative

Temporary Construction Impacts

Construction activities are anticipated to require temporary closures at on- and off-ramps of the State Park Drive, Rio Del Mar Boulevard, and Freedom Boulevard interchanges; however, ramp closures would be staged so that successive off- or on-ramps are not closed at the same time and detours would be provided to minimize temporary impacts on motorists, bus service, bicyclist and pedestrians, and adjacent neighborhoods.

The Build Alternative would include the replacement of the two Santa Cruz Branch Rail Line bridges over State Route 1 and widening the State Route 1 bridge over Aptos Creek and Spreckels Drive to accommodate the proposed auxiliary lanes. Widening the State Route 1 bridge over Aptos Creek and Spreckels Drive would require demolition of the existing bridge and construction of a new bridge. Construction of the new State Route 1 bridge over Aptos Creek would precede demolition of the existing bridge, and traffic would be routed to the new bridge before demolition of the existing bridge. Temporary lane closures may be needed on affected road segments adjacent to ramp and bridge construction, with temporary flagging during construction hours. Temporary overnight closures of either direction of State Route 1 for falsework erection/removal of the existing railroad overcrossings may also occur.

Improvements to Coastal Rail Trail Segment 12 would temporarily restrict vehicle travel along Soquel Drive in Aptos Village, although access to surrounding residences and businesses would be maintained during construction activities. Temporary closures and detours could result in increased congestion on nearby local streets during construction. The improvements would also temporarily restrict vehicle and bus travel along Soquel Drive in Aptos Village, including the bus stop at Trout Gulch Road. Moosehead Drive is not a through street, however at the end of Moosehead Drive there is emergency access available through a locked gate to the adjacent Carrera Circle residential area. Temporary closures of Moosehead Drive to conform to existing pavement at each end of the realigned segment of roadway may be necessary.

Temporary impacts related to access, circulation, parking, public transportation, and bicycle and pedestrian facilities would be avoided and minimized through the development and implementation of a Transportation Management Plan (AMM TR-1). The purpose of the Transportation Management Plan would be to identify suitable detours and traffic rerouting measures to reduce temporary traffic impacts during construction. The Transportation Management Plan would be developed during the design phase with participation from local agencies. Early and well-publicized announcements and other public information measures would be made to communicate road closures, impacts on pedestrian and bicycle facilities, detours, parking restrictions, the construction schedule, and other pertinent travel information.

Permanent Impacts

Access, Circulation, and Parking

The Build Alternative would reduce delay within the project limits on the State Route 1 mainline segments with the addition of auxiliary lanes from a range of 3,950–4,400 vehicles per hour to a range of 5,600–6,100 vehicles per hour (CDM Smith 2021). This would improve both highway operations and safety in the areas between interchanges. However, the mainline capacity (traffic flow throughput) of the freeway at the interchanges is unchanged by the project (CDM Smith 2023).

The project auxiliary lanes are less than one mile long and act independently of each other (i.e., auxiliary lane operations between one pair of interchanges do not affect auxiliary lane operations between another pair of interchanges). Based on the Caltrans' Transportation Analysis under CEQA and Transportation Analysis Framework guidelines, this project type is not likely to lead to a substantial increase in vehicle travel. So, qualitatively speaking, the project auxiliary lanes would not result in a substantial change in countywide trips. A portion of existing trips on local streets may divert to freeway facility due to the auxiliary lanes (CDM Smith 2023).

Based on the vehicle miles traveled analysis in the Traffic Operations Analysis Report, State Route 1 daily vehicle miles traveled would increase under 2025 Build to be 0.6 percent higher than 2025 No-Build Alternative and State Route 1 daily vehicle miles traveled under 2045 Build to be 2.7 percent higher than 2045 No-Build Alternative, both directions of travel combined (CDM Smith 2021).

A vehicle miles traveled reduction on local streets would happen simultaneously to the vehicle miles traveled increase on State Route 1. The vehicle miles traveled reduction on local streets (particularly, the parallel arterial of Soquel Drive, which is slightly more circuitous than State Route 1 between the interchanges within the project limits) is expected to be of the same or slightly higher magnitude than the vehicle miles traveled increase on State Route 1. All diversions due to the auxiliary lanes are also expected to happen in the vicinity of the project and within the Santa Cruz County limits. Therefore, the net change in the countywide vehicle miles traveled due to the auxiliary lanes is expected to be zero or a small negative value (CDM Smith 2023).

Based on a comparison of the Build and No-Build Alternatives in the Traffic Operations Analysis Report, the Build Alternative would result in an increase in average speed in the southbound PM peak direction in 2025 and for all directions/time periods in 2045 except the northbound AM peak direction. For the northbound AM peak direction, the potential speed improvement within the study area is largely offset by a downstream bottleneck north of the Soquel Avenue interchange. Compared to the No-Build Alternative, the level of service for the Build Alternative improves for the southbound PM peak direction in the year 2025 but no improvements were seen in the year 2045 (CDM Smith 2021) (see Tables 2-19 through 2-22).

The Traffic Operations Analysis Report assumed that the existing 91X transit route would change to a 91X express service by using Hwy 1 between Main Street interchange near Watsonville Transit Center and Morrissey Boulevard interchange near Santa Cruz Transit Center and avoiding Soquel Drive between State Park interchange and Soquel Drive interchange. Buses would operate on the new auxiliary lanes between freeway on- and off-ramps and on Bus-on-Shoulder facilities through the interchange areas. The increase in bus services would improve operations on the freeway mainline segments by shifting traffic from a low-occupancy vehicle mode to a high-occupancy bus mode, thereby reducing traffic. Due to the bus-on-shoulder and auxiliary lane operations and the routing change, the project would reduce 91X transit route travel times between Santa Cruz and Watsonville by 15 minutes in the northbound direction during the AM peak travel period and would reduce travel times by 18 minutes in the southbound direction during the PM peak travel period in the opening year (2025) (CDM Smith 2021).

Coastal Rail Trail Segment 12 would result in per trip bike and walk travel time savings of up to 7 minutes each, which translates to 17.2 person-hours

per day of bike travel time savings and 5.0 person-hours per day of pedestrian travel time savings under the Opening Year (2025) Build conditions (CDM Smith 2023).

Based on the Traffic Operations Analysis Report, the construction of auxiliary lanes and education/enforcement activities relating to bus-on-shoulder operations would result in a reduction in total collisions comparing the Build Alternative to the No-Build Alternative in 2019, 2025, and 2045 ranges between 17% and 20% (CDM Smith 2021). The project trail has the potential to eliminate 80 percent of the vehicle/pedestrian and vehicle/bike conflicts seen under the No-Build Alternative. This is a reduction of nearly 18.6 active-transportation involved collisions per year on average under 2025 Build conditions (CDM Smith 2023).

The project is also expected to result in a reduction of 0.076 mortalities per year due to increased use of active transportation modes and associated health benefits (CDM Smith 2023).

Finally, improved travel conditions on State Route 1 would shift vehicles from local roads back to State Route 1, reducing neighborhood cut-through traffic (CDM Smith 2021).

Table 2-19. Summary of Operational Performance During Northbound AM Peak Period, Opening Year No-Build Versus Opening Year Build

Performance Measure	Opening Year (2025) No-Build	Opening Year (2025) Build	Horizon Year (2045) No Build	Horizon Year (2045) Build
Volume (Vehicles Per Hour)	3,251	3,255	3,052	3,071
Vehicles Hours Traveled	3,332	3,893	6,017	7,121
Level Of Service	F	F	F	F
Average Speed (Miles Per Hour)	30	26	16	13
Delay (Minutes Per Vehicle)	0	0	0.1	0

Table 2-20. Summary Of Operational Performance During Northbound PM Peak Period, Opening Year No-Build Versus Opening Year Build

Performance Measure	Opening Year (2025) No-Build	Opening Year (2025) Build	Horizon Year (2045) No Build	Horizon Year (2045) Build
Volume (Vehicles Per Hour)	2,537	2,555	2,905	2,902
Vehicles Hours Traveled	1,270	1,273	1,487	1,449
Level Of Service	C	B	C	C
Average Speed (Miles Per Hour)	62	62	60	62
Delay (Minutes Per Vehicle)	0	0	0.1	0

Table 2-21. Summary Of Operational Performance During Southbound AM Peak Period, Opening Year No-Build Versus Opening Year Build

Performance Measure	Opening Year (2025) No-Build	Opening Year (2025) Build	Horizon Year (2045) No Build	Horizon Year (2045) Build
Volume (Vehicles Per Hour)	3,024	3,027	3,458	3,464
Vehicles Hours Traveled	2,839	2,835	3,378	3,304
Level Of Service	C	C	C	C
Average Speed (Miles Per Hour)	61	61	58	60
Delay (Minutes Per Vehicle)	0	0	0	0

Table 2-22. Summary Of Operational Performance During Southbound PM Peak Period, Opening Year No-Build Versus Opening Year Build

Performance Measure	Opening Year (2025) No-Build	Opening Year (2025) Build	Horizon Year (2045) No Build	Horizon Year (2045) Build
Volume (Vehicles Per Hour)	3,533	3,581	3,635	3,968
Vehicles Hours Traveled	6,953	3,506	10,789	7,796
Level Of Service	F	C	F	F
Average Speed (Miles Per Hour)	29	58	19	29
Delay (Minutes Per Vehicle)	10.3	0.4	20.3	10.3

Table 2-23. Opening Year (2025) Level of Service in the State Route 1 Northbound Direction by Mainline Segment and Time Period for the No-Build Condition

Mainline Segment	AM Peak Period Level of Service	PM Peak Period Level of Service
S/O Larkin Valley Road off	C	B
Larkin Valley Road off – on	D	B
Larkin Valley Road on - Freedom Boulevard off	E	C
Freedom Boulevard off – on	F	B
Freedom Boulevard on - Rio Del Mar Boulevard off	E	C
Rio Del Mar Boulevard off – on	F	C
Rio Del Mar Boulevard on - State Park Drive off	F	C
State Park Drive off - northbound State Park Drive on	F	C
Northbound State Park Drive on - southbound State Park Drive on	F	C
southbound State Park Drive on - Park Avenue off	F	B
Corridor Limits: Project Limits + Adj. & U/S Links	F	C

Source: CDM Smith 2021

Table 2-24. Opening Year (2025) Level of Service in the State Route 1 Northbound Direction by Mainline Segment and Time Period for the Build Condition

Mainline Segment	AM Peak Period Level of Service	PM Peak Period LOS
S/O Larkin Valley Road off	C	B
Larkin Valley Road off – on	C	B
Larkin Valley Road on - Freedom Boulevard off	C	C
Freedom Boulevard off – on	C	C
Freedom Boulevard on - Rio Del Mar Boulevard off	D	B
Rio Del Mar Boulevard off – on	F	C
Rio Del Mar Boulevard on - State Park Drive off	F	B
State Park Drive off - northbound State Park Drive on	F	C
Northbound State Park Drive on - southbound State Park Drive on	F	C
southbound State Park Drive on - Park Avenue off	F	B
Corridor Limits: Project Limits + Adjacent Segments	F	B

Source: CDM Smith 2021

Table 2-25. Opening Year (2025) Level of Service in the State Route 1 Southbound Direction by Mainline Segment and Time Period for the No-Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period Level of Service
N/O Ocean Street on	B	C
Ocean Street on - State Route 17 on	C	D
State Route 17 on - Fairmount Avenue off	C	C
Fairmount Avenue off - on	B	C
Fairmount Avenue on - Morrissey Boulevard on	C	C
Morrissey Boulevard on - Soquel Drive off	C	C
Soquel Drive off – on	C	D
Soquel Drive on - 41st Avenue off	C	F
41st Avenue off - southbound 41st Avenue on	C	F
southbound 41st Avenue on - northbound 41st Avenue on	C	F
northbound 41st Avenue on - Bay Avenue/Porter Street off	C	F
Bay Avenue/Porter Street off – on	C	F
Bay Avenue/Porter Street on - Park Avenue off (merge area)	C	F
Bay Avenue/Porter Street on - Park Avenue off (diverge area)	C	F
Park Avenue off – on	C	F

Mainline Segment	AM Peak Period LOS	PM Peak Period Level of Service
Park Avenue on - State Park Drive off	B	F
State Park Drive off - southbound State Park Drive on	C	F
southbound State Park Drive on - northbound State Park Drive on	C	F
northbound State Park Drive on - Rio Del Mar Boulevard off	C	E
Rio Del Mar Boulevard off – on	C	D
Rio Del Mar Boulevard on - Freedom Boulevard off	C	D
Freedom Boulevard off – on	C	C
Freedom Boulevard on - Larkin Valley Road off	C	D
Corridor Limits: Project Limits + Adjacent Segments	C	F

Source: CDM Smith 2021

Table 2-26. Opening Year (2025) Level of Service in the State Route 1 Southbound Direction by Mainline Segment and Time Period for the Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
N/O Ocean Street on	B	C
Ocean Street on - State Route 17 on	C	D
State Route 17 on - Fairmount Avenue off	C	C
Fairmount Avenue off - on	B	C
Fairmount Avenue on - Morrissey Boulevard on	C	C
Morrissey Boulevard on - Soquel Drive off	C	C
Soquel Drive off – on	C	C
Soquel Drive on - 41st Avenue off	C	C
41st Avenue off - southbound 41st Avenue on	C	C
southbound 41st Avenue on - northbound 41st Avenue on	C	C
northbound 41st Avenue on - Bay Avenue/Porter Street off	C	C
Bay Avenue/Porter Street off – on	C	D
Bay Avenue/Porter Street on - Park Avenue off (merge area)	C	C
Bay Avenue/Porter Street on - Park Avenue off (diverge area)	C	C
Park Avenue off – on	C	D
Park Avenue on - State Park Drive off	B	C
State Park Drive off - southbound State Park Drive on	C	D
southbound State Park Drive on - northbound State Park Drive on	B	C
northbound State Park Drive on - Rio Del Mar Boulevard off	B	D
Rio Del Mar Boulevard off – on	C	D
Rio Del Mar Boulevard on - Freedom Boulevard off	B	C
Freedom Boulevard off – on	C	C

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
Freedom Boulevard on - Larkin Valley Road off	C	D
Corridor Limits: Project Limits + Adjacent Segments	C	C

Source: CDM Smith 2021

Table 2-27. Horizon Year (2045) Level of Service in the State Route 1 Northbound Direction by Mainline Segment and Time Period for the No-Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
S/O Larkin Valley Road off	F	C
Larkin Valley Road off – on	F	C
Larkin Valley Road on - Freedom Boulevard off	F	C
Freedom Boulevard off – on	F	C
Freedom Boulevard on - Rio Del Mar Boulevard off	F	D
Rio Del Mar Boulevard off – on	F	C
Rio Del Mar Boulevard on - State Park Drive off	F	D
State Park Drive off - northbound State Park Drive on	F	C
Northbound State Park Drive on - southbound State Park Drive on	F	C
southbound State Park Drive on - Park Avenue off	F	B
Corridor Limits: Project Limits + Adj. & U/S Links	F	C

Source: CDM Smith 2021

Table 2-28. Horizon Year (2045) Level of Service in the State Route 1 Northbound Direction by Mainline Segment and Time Period for the Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
S/O Larkin Valley Road off	F	C
Larkin Valley Road off – on	F	C
Larkin Valley Road on - Freedom Boulevard off	F	C
Freedom Boulevard off – on	F	C
Freedom Boulevard on - Rio Del Mar Boulevard off	F	B
Rio Del Mar Boulevard off – on	F	C
Rio Del Mar Boulevard on - State Park Drive off	F	B
State Park Drive off - northbound State Park Drive on	F	C
Northbound State Park Drive on - southbound State Park Drive on	F	C
southbound State Park Drive on - Park Avenue off	F	B
Corridor Limits: Project Limits + Adjacent Segments	F	C

Source: CDM Smith 2021

Table 2-29. Horizon Year (2045) Level of Service in the State Route 1 Southbound Direction by Mainline Segment and Time Period for the No-Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
N/O Ocean Street on	B	F
Ocean Street on - State Route 17 on	C	F
State Route 17 on - Fairmount Avenue off	C	F
Fairmount Avenue off - on	C	F
Fairmount Avenue on - Morrissey Boulevard on	C	F
Morrissey Boulevard on - Soquel Drive off	C	F
Soquel Drive off – on	D	F
Soquel Drive on - 41st Avenue off	C	F
41st Avenue off - southbound 41st Avenue on	D	F
southbound 41st Avenue on - northbound 41st Avenue on	D	F
northbound 41st Avenue on - Bay Avenue/Porter Street off	C	F
Bay Avenue/Porter Street off – on	D	F
Bay Avenue/Porter Street on - Park Avenue off (merge area)	C	F
Bay Avenue/Porter Street on - Park Avenue off (diverge area)	C	F
Park Avenue off – on	D	F
Park Avenue on - State Park Drive off	C	F
State Park Drive off - southbound State Park Drive on	D	F
southbound State Park Drive on - northbound State Park Drive on	D	F
northbound State Park Drive on - Rio Del Mar Boulevard off	D	E
Rio Del Mar Boulevard off – on	D	D
Rio Del Mar Boulevard on - Freedom Boulevard off	D	D
Freedom Boulevard off – on	C	C
Freedom Boulevard on - Larkin Valley Road off	C	D
Corridor Limits: Project Limits + Adjacent Segments	C	F

Source: CDM Smith 2021

Table 2-30. Horizon Year (2045) Level of Service in the State Route 1 Southbound Direction by Mainline Segment and Time Period for the Build Condition

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
N/O Ocean Street on	C	D
Ocean Street on - State Route 17 on	C	D
State Route 17 on - Fairmount Avenue off	C	D

Mainline Segment	AM Peak Period LOS	PM Peak Period LOS
Fairmount Avenue off - on	C	C
Fairmount Avenue on - Morrissey Boulevard on	C	C
Morrissey Boulevard on - Soquel Drive off	C	C
Soquel Drive off – on	D	D
Soquel Drive on - 41st Avenue off	C	F
41st Avenue off - southbound 41st Avenue on	D	F
southbound 41st Avenue on - northbound 41st Avenue on	D	F
northbound 41st Avenue on - Bay Avenue/Porter Street off	C	F
Bay Avenue/Porter Street off – on	D	F
Bay Avenue/Porter Street on - Park Avenue off (merge area)	C	F
Bay Avenue/Porter Street on - Park Avenue off (diverge area)	C	F
Park Avenue off – on	D	E
Park Avenue on - State Park Drive off	C	F
State Park Drive off - southbound State Park Drive on	C	F
southbound State Park Drive on - northbound State Park Drive on	B	F
northbound State Park Drive on - Rio Del Mar Boulevard off	C	F
Rio Del Mar Boulevard off – on	C	E
Rio Del Mar Boulevard on - Freedom Boulevard off	C	C
Freedom Boulevard off – on	C	D
Freedom Boulevard on - Larkin Valley Road off	D	D
Corridor Limits: Project Limits + Adjacent Segments	C	F

Source: CDM Smith 2021

The Build Alternative would result in the loss of 15 on-street parking spaces that serve residential and commercial uses along Aptos Street near Aptos Village in order to accommodate Coastal Rail Trail Segment 12, and up to three parking spaces could be removed on the east side of Aptos Creek Road. These spaces would not be replaced; however, given the availability of existing parking spaces in Aptos Village, the parking loss is anticipated to be minor.

A corridor-level operational performance summary (including the freeway mainline segments within the project limits) in terms of volumes (Vehicle Hours Traveled), and vehicle hours of delay is provided in Tables 2-30 and 2-31. As shown in the tables, under both opening (2025) and horizon (2045) conditions, implementation of the Build Alternative is expected to increase daily Vehicle Hours Traveled and vehicle hours of delay in northbound direction and decrease daily Vehicle Hours Traveled and vehicle hours of delay in the southbound direction, compared to the No Build Alternative. Both directions combined, there is a net decrease in daily Vehicle Hours Traveled and daily vehicle hours of delay.

Table 2-31. Opening Year (2025) and Horizon Year (2045) Estimated Daily Vehicle Hours Traveled and vehicle hours of delay in the State Route 1 by Direction of Flow

Performance Measure / Unit	Direction	Opening Year (2025) No Build	Opening Year (2025) Build	Change
Daily Vehicle Hours Traveled (vehicle-hours)	State Route 1 northbound	5,880	6,450	570
Daily Vehicle Hours Traveled (vehicle-hours)	State Route 1 southbound	11,830	8,400	-3,430
Daily vehicle hours of delay (vehicle-hours)	State Route 1 northbound	1,720	2,270	550
Daily vehicle hours of delay(vehicle-hours)	State Route 1 southbound	3,660	160	-3,500

Source: CDM Smith 2021.

Table 2-32. Opening Year (2025) and Horizon Year (2045) Estimated Daily Vehicle Hours Traveled and vehicle hours of delay in the State Route 1 by Direction of Flow

Performance Measure / Unit	Direction	Horizon Year (2045) No Build	Horizon Year (2045) Build	Change
Daily Vehicle Hours Traveled (vehicle-hours)	State Route 1 northbound	8,820	9,890	1,070
Daily Vehicle Hours Traveled (vehicle-hours)	State Route 1 southbound	16,370	13,410	-2,960
Daily vehicle hours of delay (vehicle-hours)	State Route 1 northbound	4,530	5,590	1,060
Daily vehicle hours of delay (vehicle-hours)	State Route 1 southbound	7,540	4,150	-3,390

Source: CDM Smith 2021.

Table 2-33 summarizes the countywide changes in vehicle miles traveled that would result from the Build Alternative. As mentioned before, the net change in the countywide vehicle miles traveled due to the project auxiliary lanes is expected to be zero or a small negative value. Project bus-on-shoulder and trail would result in a mode shift from auto to transit, bike and pedestrian modes of transportation, which in turn would result in a countywide net decline of 6,952 vehicle miles traveled per day and 8,094 vehicle miles traveled per day under 2025 and 2045 Build Alternative compared to the No-Build Alternative, respectively (CDM Smith 2023). Note that the reduction in vehicle miles traveled for the bus-on-shoulder and Coastal Rail Trail Segment 12 components show the reduction in vehicle miles traveled for autos.

Table 2-33. Countywide Vehicle Miles Traveled Impacts (per day)

Mode	2019	2025 No-Build	2025 Build	2025 Change	2045 No-Build	2045 Build	2045 Change
Auto	5,060,458	5,235,996	5,228,107	-7,889	5,595,699	5,586,668	-9,031
Bus-on-Shoulder	Not Applicable	Not Applicable	Not Applicable	-6,958	Not Applicable	Not Applicable	-6,958
Coastal Rail Trail Segment 12	Not Applicable	Not Applicable	Not Applicable	-931	Not Applicable	Not Applicable	-2,073
Truck	406,787	330,847	330,847	0	297,227	297,227	0
Transit	10,625	8,023	8,960	937	8,579	9,516	937
Total	5,477,870	5,574,866	5,567,914	-6,952	5,901,505	5,893,411	-8,094

Source: CDM Smith 2023

Public Transportation

Overall, the Build Alternative would not reduce transit service or permanently affect transit stops. Rather, this alternative would improve public transit by adding auxiliary lanes to accommodate Bus-on-Shoulder operations between the Freedom Boulevard and State Park Drive interchanges, which would reduce travel times on the State Route 1 corridor. Furthermore, the trail would provide increased connectivity and safe access to public transit along Soquel Drive and other local streets.

Bicycle and Pedestrian Facilities

The Build Alternative would result in long-term beneficial effects on bicycle and pedestrian facilities by enhancing existing facilities, improving connectivity, creating new bicycle and pedestrian facilities, and reducing delay on State Route 1 throughout the project area. The Coastal Rail Trail Segment 12 would provide new access to Aptos Village and across State Route 1 for bicycle and pedestrian modes of travel. The new trail overcrossings of State Route 1 would provide high-visibility pedestrian and bicycle crossing facilities and improve pedestrian and bicycle connectivity between the areas on the north and south sides of the State Route 1 corridor. Accordingly, the Build Alternative would improve pedestrian and bicycle facilities and connectivity within the study area.

This improved connectivity also results in a reduction in the distance that pedestrians and bicyclists would have to travel when their trip involves traveling from one side of the freeway to the other, as well as for some trips that parallel the State Route 1 corridor. It is expected that this trip length reduction will attract pedestrians and bicyclists to the trail, and that auto drivers will shift their travel mode to take advantage of this shorter trip length.

Overall, the Build Alternative would benefit access and circulation, public transportation, and bicycle and pedestrian facilities. Therefore, no avoidance, minimization, and/or mitigation measures would be required for operation.

No-Build Alternative

Access, Circulation, and Parking

Based on the results of the Traffic Operations Analysis Report, average weekday daily mainline traffic in the State Route 1 northbound and southbound directions under the No-Build Alternative within the project limits is expected to grow between the existing year (2019) and the opening year (2025) by 4.2% in the northbound direction and 5.7% in the southbound direction, and between the existing year (2019) and the horizon year (2045) by 17.4% in the northbound direction and 20.9% in the southbound direction. Additionally, average weekday daily on-ramp traffic in the State Route 1 northbound and southbound directions under the No-Build Alternative is expected to grow between the existing year (2019) and the opening year

(2025) by approximately 3.4% and 3.9%, respectively. Off-ramp traffic would grow by 3.9% in the northbound direction and 3.3% in the southbound direction. Between the existing year (2019) and the horizon year (2045), on-ramp traffic in the State Route 1 northbound and southbound directions under the No-Build Alternative is expected to grow by 10.7% and 11%, respectively, while off-ramp traffic would grow by 15.0% in the northbound direction and 11.1% in the southbound direction.

Existing circulation and access deficiencies would persist or worsen under this alternative. Under the No-Build Alternative, by 2045, access to various facilities within the study intersections would be adversely affected during both the morning and evening peak periods. No private or public parking spaces would be removed under the No-Build Alternative.

The County of Santa Cruz General Plan and Local Coastal Program contains circulation goals focused on providing a convenient, safe, and economical transportation system, providing the public with multiple transportation modes, and providing for more efficiency. The Build Alternative is consistent with these goals as it would increase efficiency in the State Route 1 corridor by reducing delay and bottlenecks and diverting traffic off local streets. Furthermore, the Build Alternative would increase bicycle access and connectivity, which is in line with the goal to improve the county's bikeway system (County of Santa Cruz 2020).

Public Transportation

The No-Build Alternative would not result in any direct impacts on transit facilities or result in any short-term impacts on bus service; however, the No-Build Alternative would continue to make transit service inefficient and would not induce a mode shift from automobiles to buses. As traffic volumes and delay would continue to increase, the existing roadway would not be able to accommodate Bus-on-Shoulder services because no auxiliary lanes would be constructed, and travel times between destinations would increase.

Bicycle and Pedestrian Facilities

The No-Build Alternative would not result in any direct impacts on existing bicycle or pedestrian facilities; however, it also would not enhance existing limited bicycle and pedestrian facilities within the project area, and no bicycle or pedestrian facilities would be added as part of Coastal Rail Trail Segment 12.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is necessary. Avoidance and minimization measures would reduce impacts on traffic circulation due to temporary lane and street closures during construction.

- **AMM TR-1:** The Transportation Management Plan will include traffic rerouting measures, a detour plan, and public information procedures, which will be developed during the design phase with participation from local agencies, transit and shuttle services, local school administrations, local communities, business associations, and affected drivers. Early and well-publicized announcements and other public information measures prior to and during construction will minimize confusion, inconvenience, and traffic congestion. As part of the Transportation Management Plan, construction planning will minimize nighttime construction in residential areas and minimize daytime construction impacts on commercial areas. Staging areas would be located within the existing Caltrans right-of-way and, as feasible, within the Santa Cruz Branch Rail Line right-of-way along Coastal Rail Trail Segment 12. The Transportation Management Plan will identify staging areas on parcels for which temporary construction easements will be obtained, including an area of Aptos Village County Park adjacent to the railroad right-of-way. Additionally, the following measures will be incorporated and implemented, if applicable, based on final construction design plans:
 - During the construction phase of the proposed project, some parking restrictions may be required on a temporary basis. A public outreach program throughout the construction period will keep the public informed of the construction schedule and scheduled parking and roadway closures, including detour routes and, if available, alternative parking.
 - In the event of temporary obstruction of any pedestrian walkways or bicycle paths, the Transportation Management Plan will identify nearby alternate routes, including pedestrian routes that meet ADA requirements, as appropriate.
 - The Transportation Management Plan will include measures to minimize, avoid, or mitigate impacts on alternate routes, such as agreements with the County of Santa Cruz to provide enhanced infrastructure (e.g., necessary signage, flagging, cones) on arterial roads or intersections to deal with detoured traffic.
 - Coordination with transit and private shuttle services will occur to plan for any rerouting, and any necessary avoidance, minimization, or mitigation measures will be incorporated in the Transportation Management Plan.
 - To minimize disruption to the traveling public during construction of the proposed project, a comprehensive strategy will be developed to minimize disruption and assure the safe movement of vehicles through and around the construction site.

References

- California Department of Transportation. 2015. Community Impact Assessment, Santa Cruz Route 1 High Occupancy Vehicle Tier I Corridor Analysis of High Occupancy Vehicle Lanes and Transportation System Management (TSM) Alternatives and Tier II Build Project Analysis 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes and Chanticleer Avenue Pedestrian Overcrossing.
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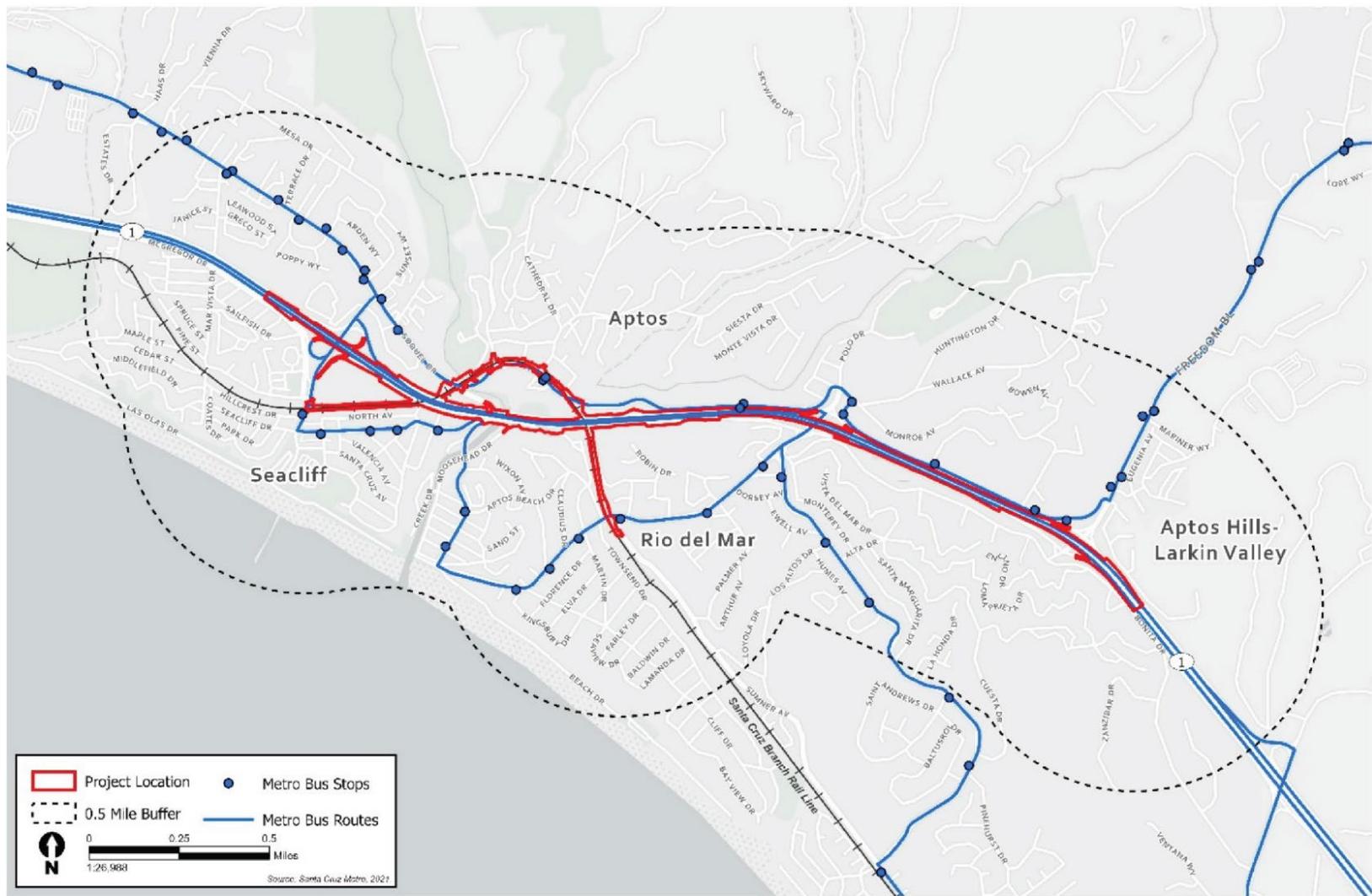
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Santa Cruz County Regional Transportation Commission/Caltrans, *Nationally Significant Multimodal Freight & Highway Projects (INFRA) Grant Application for Highway 1 Auxiliary Lanes and Bus on Shoulder Improvements and Coast Rail Trail Segment 12 Project*, May 2022.



Source: California Department of Transportation 2022

Figure 2-3. Roadway Network



Source: California Department of Transportation 2022

Figure 2-4. Transit Network



Source: California Department of Transportation 2022

Figure 2-5. Bicycle and Pedestrian Facilities

2.1.8 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 United States Code [U.S. Code] Section 4331(b)(2)). To further emphasize this point, the Federal Highway Administration, in its implementation of NEPA (23 U.S. Code Section 109(h)), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities” (California Public Resources Code Section 21001(b)).

California Streets and Highways Code Section 92.3 directs Caltrans to use drought-resistant landscaping and recycled water when feasible and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.

Affected Environment

Information in this section is from the Visual Impact Assessment prepared for the project (ICF 2022) and the Tier I Visual Impact Assessment prepared by Caltrans for the *Tier II 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes Project* (2013).

Visual Assessment Units and Key Views

The project corridor was divided into a series of “outdoor rooms” or visual assessment units, which were previously referred to as landscape units. Each visual assessment unit has its own visual character and visual quality. It is typically defined by the limits of a particular viewshed. The Tier I Visual Impact Assessment from July 2013, which analyzed the entire corridor from Morrissey Boulevard and San Andreas-Larkin Valley Roads interchanges, identified two distinct and separate landscape units along State Route 1 between Freedom Boulevard and State Park Drive, the Aptos and Upland Landscape Units shown in Figure 2-6 (Caltrans 2013). However, in-depth site investigation and field visits conducted in 2021 revealed that a discernable difference in visual character and quality is not visible along State Route 1 between Freedom Boulevard and State Park Drive. It is not until a viewer approaches the San Andreas Road interchange, to the south and outside of the project limits, that a change in visual character and quality is readily visible. In this area, the transition from mature dense trees and riparian corridors changes to a more open native scrub plant and grass mix with more

scattered trees and noticeable difference in topography. This assessment unit will be referred to as the State Route 1 visual assessment unit and is shown in Figure 2-7. Figure 2-7 also shows the locations of typical views that are representative of the project corridor and key views that have been simulated. In addition, this project analyzes Coastal Rail Trail Segment 12, which is consistent in visual character and quality throughout its length and is referred to as the Rail Trail visual assessment unit. This visual assessment unit and the locations of its associated typical views that are representative of the project corridor and key views that have been simulated are shown in Figure 2-8.



Figure 2-6. Aerial View of Landscape Units from Tier I Visual Impact Assessment (July 2013)

State Route 1 Visual Assessment Unit

Figure 2-8 includes the typical views associated with the State Route 1 visual assessment unit that are mapped on Figure 2-7. As noted in the Tier I Visual Impact Assessment, the “predominant visual element of this unit is the tree vegetation associated with the creeks that cross the corridor, including Aptos-Valencia Creeks, Ord Gulch, Borregas Creek, Pot Belly Creek, and Nobel Creek (Caltrans 2013).” In addition to the riparian vegetation lining the creeks, large trees such as pine, cedar, redwood, and eucalyptus dominate views throughout the segment, while smaller understory trees and vegetation screen the majority of views to adjacent developments. The height and density of the existing vegetation creates a feeling of enclosure for highway users that creates a tunnel-like feeling. Adjacent developments within the segment are predominantly a mix of residential and light commercial, all suburban in nature. In some areas, views to adjacent uses are nonexistent

due to the dense vegetation, while in others, brief glimpses through vegetation are visible. Development is noticeable to the highway user along the north side of State Route 1 between Rio Del Mar Boulevard and Freedom Boulevard. These developments are primarily commercial and visible as patches of existing vegetation, which open up and frame views.

The elevation change between Freedom Boulevard to the south and State Park Drive to the north is minimal—less than 30 feet of vertical change—resulting in gentle undulations along the corridor. Hillsides and ridgelines are nonexistent, with the exception of a hillside bordering Aptos Creek. This hillside adjacent to the south side of State Route 1 and along the creek contains Moosehead Drive and sparse residential properties.

The Santa Cruz Mountain foothills are located to the north. However, these distant ridgelines and mountains are largely unnoticeable because of the height and proximity of the mature trees to the highway user and, therefore, have little effect on the visual character associated with this visual assessment unit.

Visible highway elements include the highway itself; on- and off-ramps and overcrossings at State Park Drive, Rio Del Mar Boulevard, and Freedom Boulevard; two railroad overcrossings between State Park Drive and Rio Del Mar Boulevard; and miscellaneous highway and regulatory signage.

The areas surrounding and approaching Aptos Creek, from both east and west, have the highest visual quality due to the mature trees that have grown within the area directly surrounding the creek and its slopes.

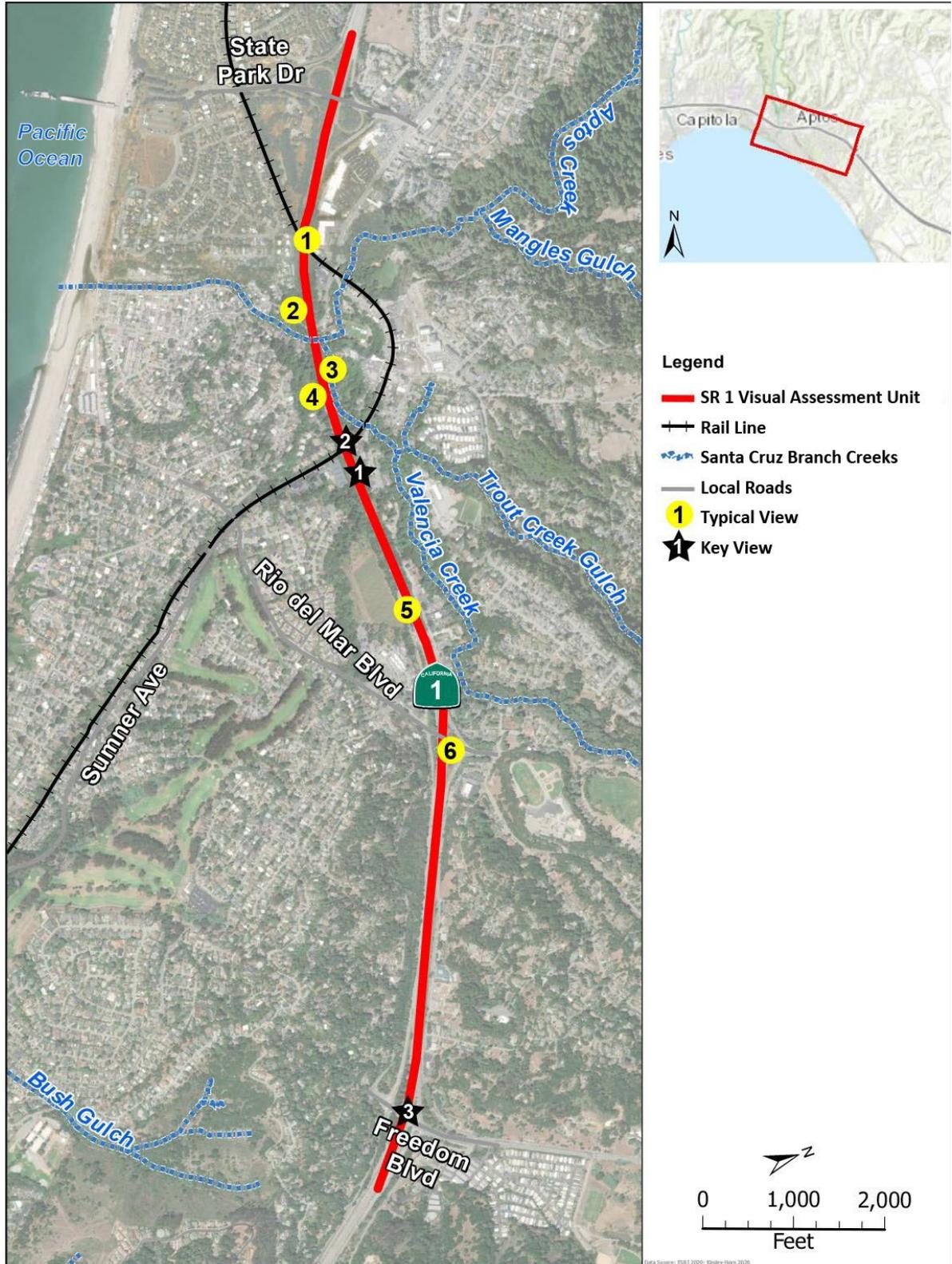


Figure 2-7. State Route 1 Visual Assessment Unit and Associated View Locations



Figure 2-8. State Route 1 Visual Assessment Unit Typical Views

This visual assessment unit is moderately well lit. Much of the State Route 1 mainline is not lit except for vehicles traveling at night. However, the interchanges and ramps are well lit. In addition, the corridor receives minimal lighting from local roadways, parking areas, and development adjacent to the visual assessment unit. Daytime and nighttime glare are also moderate because trees along the highway provide shading to minimize glare coming from the highway pavement and structures, and it screens glare from adjacent development.

Rail Trail Visual Assessment Unit

Figure 2-9 maps the Rail Trail visual assessment unit and Figure 2-10 includes the typical views associated with the Rail Trail visual assessment unit. The topography and vegetation that border the Rail Trail visual assessment unit closely mimics that described above for State Route 1. The grade of the Rail Trail alignment is flat to gently sloping. Trees along the trail corridor are comprised of similar species, mature, and provide substantial screening given the density of understory vegetation in most areas.

The major visual difference between the character of the State Route 1 visual assessment unit and the Rail Trail visual assessment unit is the proximity of adjacent development to the project corridor. Where adjacent development is set back from the highway and, in most cases, screened quite well from State Route 1, development along the Rail Trail visual assessment unit is often very close and, in some cases, very visible from the Rail Trail alignment. The existing Rail Trail alignment is highly visible as it traverses across Aptos Creek and passes through the Village of Aptos because it is directly adjacent to commercial development and the village's major thoroughfare, Soquel Drive. North of Aptos Village, the Rail Trail alignment is roughly at the same grade as the surrounding development. South of Aptos Village, the Rail Trail alignment is at a slightly higher grade than adjacent development near State Route 1. However, as it approaches its terminus near Rio Del Mar Boulevard, the Rail Trail alignment is 15 to 20 feet below the grade of adjacent development and steep embankments separate the existing rail line from adjacent residential development so that it is largely obscured from view, even to viewers directly adjacent to the Rail Trail alignment.

The Santa Cruz Mountain foothills are located to the north. However, these distant ridgelines and mountains are largely unnoticeable because of the height and proximity of the mature trees to the trail user and, therefore, have little effect on the visual character associated with this visual assessment unit.

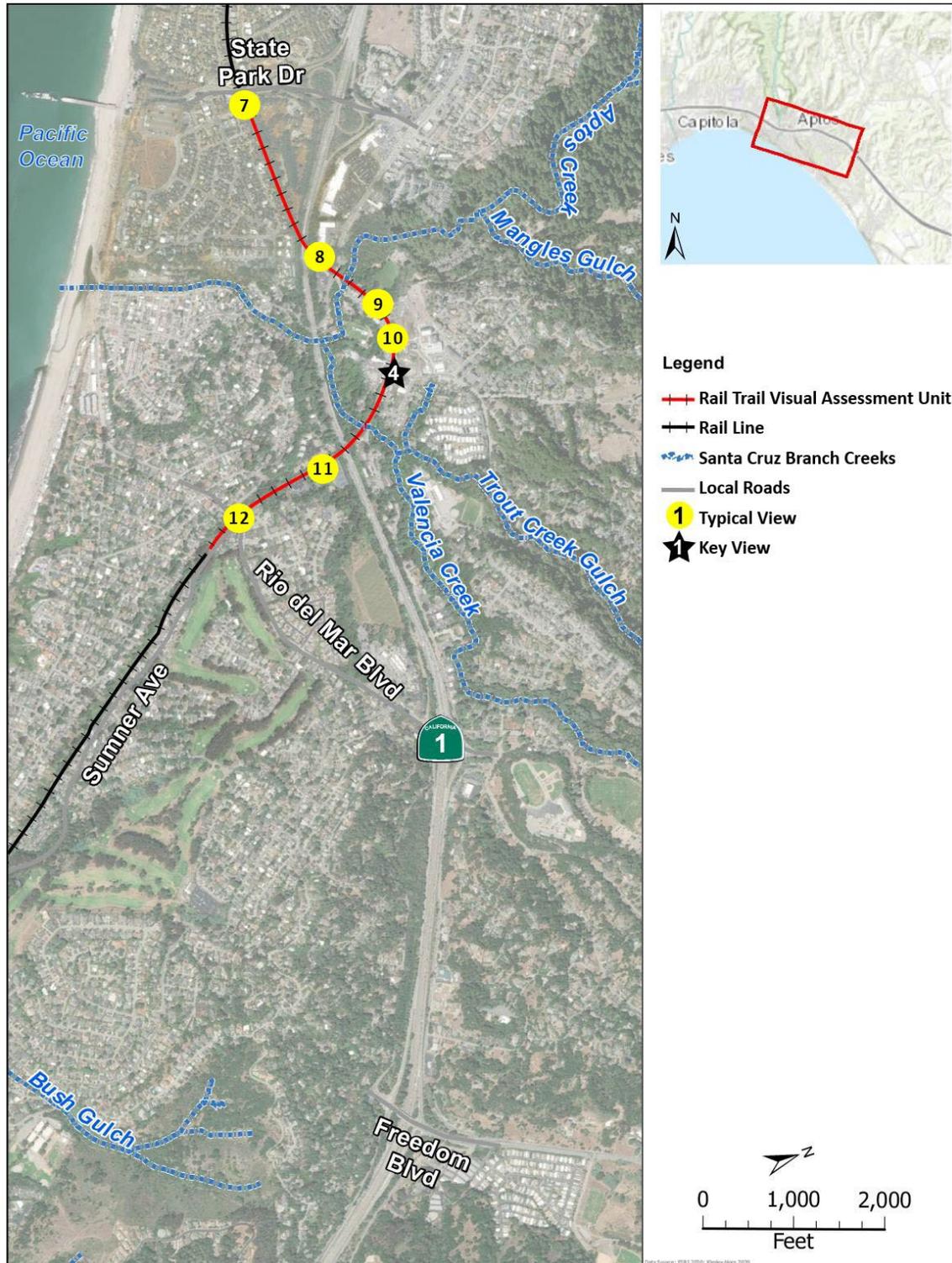


Figure 2-9. Rail Trail Visual Assessment Unit and Associated View Locations



Figure 2-10. Rail Trail Visual Assessment Unit Typical Views

Visible elements associated with the Rail Trail visual assessment unit consist of existing tracks; two existing bridge structures for the rail alignment to cross over State Route 1 between the State Park Drive and Rio Del Mar Boulevard interchanges; two existing bridge structures for the rail alignment to cross over Soquel Drive, near its intersection with Spreckels Drive and east of Bernal Street; and a bridge undercrossing for the rail line to travel under Rio Del Mar Boulevard near Sumner Avenue.

With the exception of the commercial development associated with the Village of Aptos, the areas adjacent to this visual assessment unit are primarily residential or park-like in appearance and nature. These same residential developments are also the areas of the alignment with the highest visual character because the height and density of the existing mature trees separate the developments from the Rail Trail alignment, creating a tunnel-like enclosure that feels quiet, separated, and somewhat distant from the adjacent developments, similar to the visual character associated with State Route 1.

This visual assessment unit is not well lit. The existing rail corridor is not lit, and the only light it receives is minimal lighting from local roadways, parking areas, and development adjacent to the visual assessment unit. Daytime and nighttime glare are also fairly low because trees along the rail corridor provide shading to minimize glare coming from adjacent development, except within Aptos Village where daytime and nighttime glare is moderate because there are few trees or structures immediately next to the rail corridor to provide shading.

Viewers and Viewer Response

The population affected by the project is composed of viewers. Viewers are people whose views of the landscape may be altered by the proposed project, either because the landscape itself has changed or their perception of the landscape has changed. There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has its own level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group that help to predict their responses to visual changes.

Viewers

Highway Neighbors (Views to the Road)

Highway neighbors are people who have views to the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor and therefore having distinct

responses to changes in visual resources. For this project the following highway neighbors were considered:

- **Residential Viewers:** There are many residents who live directly adjacent to State Route 1. However, most of these viewers have completely obstructed views of the highway due to the dense vegetation. In one case along the Soquel Drive frontage, near the Freedom Boulevard northbound on-ramp, multifamily residential users have only partially obscured views to State Route 1.
- **Recreational Viewers:** The Tennis Club of Rio Del Mar is located along the south side of State Route 1 adjacent to the club's five tennis courts. These viewers have heavily screened views of State Route 1, similar to the residential viewers. A small neighborhood park, Seacliff Village Neighborhood County Park, at the intersection of McGregor Drive and Canterbury Drive has unobstructed views of the southbound off-ramp and mostly screened views of the State Park Drive interchange.
- **Religious Viewers:** There is a large church, The Coastlands, on the southeast corner of the State Park Drive interchange and the Episcopal Church of St John, on McGregor Drive, which both have visibility from parking lots, driveways, and entrances to the highway, though mostly screened by vegetation.
- **Commercial Viewers (employees and customers):** At a few locations along the corridor, commercial viewers have views of State Route 1. These are primarily small office and commercial developments and restaurants along the Soquel Drive frontage road north of Rio Del Mar Boulevard and adjacent to the Freedom Boulevard northbound on-ramp.
- **Local Street Viewers:** These viewers are those that drive, bike, or walk on the roadways that cross above State Route 1 or are adjacent to State Route 1. Three overhead crossings of State Route 1 are within the corridor—Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive. Spreckels Drive crosses under State Route 1, Soquel Drive runs adjacent to State Route 1 and serves as a frontage road, and Moosehead Drive and Bonita Drive wind alongside State Route 1, coming in close proximity to the highway at some locations. The Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive overcrossings all include vehicular traffic and bicycle travel lanes with protected sidewalks for separated pedestrian traffic on one side. The viewers from above have a panoramic view of State Route 1, while those below can view the on- and off-ramps along with the overcrossing structures. The undercrossing at Spreckels Drive only provides views of State Route 1 from below.

Highway Users (Views from the Road)

Highway users are people who have views *from* the road. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing highway users by

mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing highway users or viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like bicycling tourists, for example. For this project the following highway users were considered:

- **Daily Commuter Viewers:** Daily commuters include those in private vehicles, along with regular travelers such as delivery drivers and truck drivers. These viewers have greater awareness of the visual environment because of their familiarity with the corridor due to repeated trips. Congestion on the roadway can give them even more time to observe their surroundings. At posted speeds, however, drivers tend to focus on long- to mid-range views straight ahead, while passengers have more time and a wider range of views.
- **Tourist Viewers:** State Route 1 carries a high amount of tourist traffic, driving between the Central Coast cities and visiting parks and beaches. These viewers tend to have a high interest in the visual environment, especially because although State Route 1 is not a designated scenic route, it is nationally recognized as a highway with scenic views, but less awareness than the regular travelers described above. Similar to the daily commuters, when there is congestion they can focus even more on their surroundings, but at higher speeds passengers have a better chance for wider views.
- **Transit Viewers:** Currently, State Route 1 in the corridor is used for regional bus travel by Santa Cruz Metro bus lines 55, 69A, 69W, and 91X. Generally, transit viewers are similar to both daily commuter and tourist passengers, because they have time and a wide range of views (though usually only on one side of the road). For regular travelers of this route, they may also have familiarity with the corridor.

Rail Trail Neighbors (Views to the Trail)

Rail Trail neighbors are people who have views to the trail. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate trail neighbors or viewer groups with distinct reasons for being in the corridor and therefore having distinct responses to changes in visual resources. For this project the following Rail Trail neighbors were considered:

- **Residential Viewers:** There are many residents who live directly adjacent to the Rail Trail. However, most of these viewers have completely obstructed views of the trail due to the dense vegetation and/or noticeable difference in grade. In one area along Carrera Circle, just south of State Route 1, the trail is situated at a higher elevation than adjacent

residences. In all other cases, the trail is at or below the grade of adjacent residential viewers.

- **Recreational Viewers:** The trail passes by Aptos Village Park. The Rail Trail is at a higher elevation than the park so that terrain and vegetation prevent views from the park interior. However, views of the trail are available from near the park entrance and along a portion of the entry drive. The Tennis Club of Rio Del Mar is located along Sandalwood Drive and directly adjacent to the trail. Although the Rail Trail is at an elevation above the club, the view of the trail from the club is mostly obscured by vegetation. As the trail traverses south from the club it begins its transition to being noticeably below the grade of adjacent recreational viewers on local streets. The southern terminus of the Rail Trail is adjacent to the Seascope Golf Course. Views to the trail from the course are completely obstructed by residential properties, vegetation, and difference in grade.
- **Religious Viewers:** Although the trail sits at the same grade or just slightly higher, the view from The Coastlands church is heavily screened by vegetation and a fence/wall along the southern edge of the church property.
- **Commercial Viewers (employees and customers):** At multiple locations, commercial viewers have substantial views of the Rail Trail. These viewers are located primarily within the Village of Aptos where the trail runs directly between Soquel Drive and the parking lots of the Aptos Station commercial development. Additional commercial viewers are located at the gas station near the corner of Sea Ridge Road and State Park Drive. In all cases, the commercial viewers have relatively unobstructed views of the Rail Trail.
- **Local Street Viewers:** These viewers are those that drive, bike, or walk on the roadways that cross the Rail Trail or are adjacent to it. The Rail Trail is most readily seen from at-grade intersections such as at State Park Drive, Aptos Road, and Trout Gulch Road that provide direct views down the rail corridor. Rail Trail Segment 12 crosses over State Route 1 twice, and it also crosses over Soquel Drive twice, near the intersections of Spreckels Drive and Aptos Street. Viewers on State Route 1 and Soquel Drive are only able to see views of the bridge structures that pass above and small segments of trail that are visible on either side of the bridges. The Rail Trail crosses under Rio Del Mar Boulevard near its intersection with Sumner Avenue. The viewers from above have uninterrupted views to the trail below from protected pedestrian walkways on both sides of the bridge.

Rail Trail Users (Views from the Trail)

Rail Trail users are people who have views from the trail. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing trail users by mode of travel may yield pedestrians or bicyclists. Dividing trail users or viewer groups

by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like bicycling tourists, for example. For this project the following trail users were considered:

- **Commuter Viewers:** Commuters are those who live locally and utilize the trail to commute to their place of employment. Currently, there is no existing paved trail, the existing Rail Trail corridor has a rough gravel finish, and the rough nature of the trail corridor is difficult for bicyclists or other users to navigate. Therefore, it is unlikely that it is used by anyone other than pedestrians. These viewers have a great awareness of the visual environment because of their familiarity with the trail due to repeated trips.
- **Recreational Viewers:** Recreational viewers along the trail would also be pedestrians, for the reasons described above for commuters. These viewers are, likely local and have a great awareness of the visual environment because of their familiarity with the trail due to repeated trips. Additionally, recreational viewers tend to have a higher interest in the visual environment than commuters because they are there to enjoy their surroundings.

Viewer Response

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment and has two dimensions—viewer exposure and viewer sensitivity.

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. *Location* relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure. *Quantity* refers to how many people see the object. The more people who can see an object or the greater frequency an object is seen, the more exposure the object has to viewers. *Duration* refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers will have a response to a visual change.

Residential Viewers

State Route 1

Residential viewer exposure to State Route 1 is generally within the foreground and middle ground. These viewers, primarily along the south side of the highway, have substantial vegetation in the immediate foreground, with the State Route 1 in the distant foreground and middle ground. No residences appear to have clear, unobstructed views of State Route 1 due to the density

and maturity of existing vegetation. There are approximately nine residences along Moosehead Drive that are in the closest proximity to State Route 1, whose views could be considered nearly indefinite, if not for heavy vegetation, depending on how long the viewers spend in their yards or at their windows. In addition, there are several residences along Soquel Drive north of State Route 1 and between Jaunell Road and Monroe Avenue, and along Carrera Circle south of State Route 1 that are also in close proximity to State Route 1. These views could also be considered nearly indefinite, depending on how long the viewers spend in their yards or at their windows.

Rail Trail

Residential viewer exposure to the Rail Trail is primarily in the foreground. Views are mostly screened by vegetation, walls, and/or topography. Similar to the residences along State Route 1, viewers in the five townhomes along Carrera Circle have view durations from backyards that could be considered indefinite.

Recreational Viewers

State Route 1

Recreational viewer exposure to State Route 1 from the Rio Del Mar Tennis Club is predominantly within the foreground due to the proximity of the highway to the adjacent tennis courts. Viewers from the club and any of its five courts have dense, hedge-like vegetation in the immediate foreground that blocks all views to State Route 1 and eliminates any view duration. The number of viewers from the tennis club could vary, given event size, but likely fluctuates between 10 and 30 viewers at any given time. The Seacliff Village Neighborhood County Park at the corner of McGregor Drive and Canterbury Drive has unobstructed middle ground views to the southbound off-ramp at State Park Drive. It is used by the local residential community and may have up to 20 viewers at a time. Depending on the length of their stay, view durations from the park would be considered short-term and lasting no longer than a day. However, viewers at the tennis club and park are likely to have return visitors from local residents that frequent these recreational areas.

Rail Trail

The recreational viewer exposure to the Rail Trail is primarily within the foreground. Viewers at the Rio Del Mar Tennis Club and its five courts have large, mature trees with sparse understory vegetation in the immediate foreground of views to the trail. Given the distance between the club and the trail, up to 10 viewers can have view durations of a few moments. The Seacliff Village Neighborhood County Park at the corner of McGregor Drive and Canterbury Drive has distant background views to the trail segment terminus at State Park Drive to the southeast. The views from the park are distant and minimal to nonexistent given the dense, heavily screened vegetation.

Religious Viewers

State Route 1

As noted in the State Park Drive to Bay Avenue/Porter Visual Impact Assessment from July 2020, the “Religious viewer exposure to State Route 1 is in the middle ground to background, primarily of the southbound offramp in the middle ground, across McGregor Drive, and other ramps and State Route 1 itself in the background. There are many large trees screening these views, except for the southbound off-ramp. During church events there may be 100 viewers or more in the church entrance, parking lots, and driveways. However, their views are relatively short, only the time it takes to walk to and from their cars and drive to or from the church property (Caltrans 2020a).”

Rail Trail

Similar to the views of State Route 1, religious viewer exposure to the trail is within the middle ground to background. The Coastlands Church sits directly adjacent to the trail alignment and its outdoor event space may accommodate up to 100 guests. These viewers have little to no view of the trail given the existing fence and dense vegetation along the southern edge.

Commercial Viewers

State Route 1

Commercial viewer exposure to State Route 1 is generally from the north side and within the foreground to middle ground. The majority of commercial views are across Soquel Drive, which acts as a frontage road for most of the corridor. In most cases there are tall, mature trees, with sparse understory vegetation that creates windows or views to State Route 1. The view duration of customers is substantially shorter, as they enter and exit businesses, than that of employees who are at work for several hours. The number of viewers for commercial properties is difficult to estimate, but most are light commercial office use with likely fewer than 12 customers at a time.

Rail Trail

Commercial viewer exposure to the trail is primarily from either side of Soquel Drive in Aptos Village. These views are generally within the foreground. Given the lack of vegetation in these areas, view durations are longer for employees and last only for a few minutes for customers entering and exiting businesses. The number of viewers for these commercial properties is difficult to estimate but is likely fewer than 25 at any one given time.

Local Street Viewers

State Route 1

As noted in the State Park Drive to Bay Avenue/Porter Street Visual Impact Assessment, “local street viewer exposure to State Route 1 varies. For

viewers on overcrossings and undercrossings, the views are in the foreground or middle ground. For parallel streets (frontage roads), the views are in the foreground. For frontage roads, there is usually some vegetation screening part of their views. The number of viewers varies with each roadway (Caltrans 2020a).” Along Soquel Drive, State Park Drive, Rio Del Mar Boulevard, and Freedom Boulevard, traffic can be heavy, with multiple viewers at any given time. McGregor Drive carries low volumes of traffic and a smaller number of viewers. Moosehead Drive, Bonita Drive, and Spreckels Drive have even less traffic and therefore substantially fewer viewers. At overcrossings and undercrossings, views are brief except for viewers on Soquel Drive that have views that are moderately long.

Rail Trail

Local street viewer exposure to the trail is similar to that of State Route 1 but primarily within the foreground. For viewers on overcrossings and undercrossings, the views are within the foreground or middle ground. For parallel streets, the views are within the foreground. For most roads, there is usually substantial vegetation or topography that partly or fully screens their views and view durations are minimal. The exception is along Soquel Drive in the Village of Aptos. Given the developed urban nature of the area, little to no vegetation exists between the roadway and the trail. Therefore, views are unobstructed, and durations last for a few minutes as travelers pass by the trail on the road.

All Highway Viewers

State Route 1

As noted in the State Park Drive to Bay Avenue/Porter Street Visual Impact Assessment, “highway viewers have similar exposure to views of State Route 1 and the surrounding environment. Generally, their exposure from State Route 1 to the surrounding land is limited to foreground and middle ground views, due to the density of the vegetation.” On the eastern edge of the corridor, on the north side of State Route 1 and near the Freedom Boulevard interchange, the views open up for limited middle ground views toward light commercial and office development. Given the speed of the highway, view durations of the adjacent developments are only momentarily visible. As further noted in the State Park Drive to Bay Avenue/Porter Street Visual Impact Assessment, “State Route 1 carries heavy traffic each day, with some vehicles carrying multiple viewers. Views at any one location are brief, though longer during congested traffic (Caltrans 2020a).”

Rail Trail

Highway viewer exposure to the trail is limited to the two overcrossings between Rio Del Mar Boulevard and State Park Drive. Views at these overcrossings are within the foreground or middle ground with brief durations, except in times of heavy traffic.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. *Activity* relates to the preoccupation of viewers—are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings. The more they are actually observing their surroundings, the more sensitivity viewers have of changes to visual resources. *Awareness* relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. *Local values* and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, it is likely that viewers are more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Given its proximity and relevancy, the viewer sensitivities discussed in the State Park Drive to Bay Avenue/Porter Street Visual Impact Assessment (Caltrans 2020a) and *Visual Impact Assessment: Tier I – Corridor Analysis of High Occupancy Vehicle Lanes and Transportation System Management Alternatives and Tier II – Build Project Analysis of 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes and Chanticleer Avenue Pedestrian Overcrossing* (Caltrans 2013) have been reviewed and adapted as necessary below.

Residential Viewers (State Route 1 and Rail Trail)

Residential viewers tend to have a high sensitivity to the visual environment around their residences. Although they are sometimes preoccupied with indoor or outdoor activities, they also may spend time observing their surroundings. The focus of their view is general, rather than directed toward anything specific, and their awareness is strong. State Route 1 is a state eligible scenic highway (Caltrans 2019) and is a Santa Cruz County–designated scenic road (County of Santa Cruz 1994). Santa Cruz County also has a tree removal policy, restricting the removal of healthy trees unless they pose a traffic hazard or for the purpose of road widening, and replacement of trees nearby is required. Residential viewer sensitivity and awareness towards the Rail Trail is currently minimal given its inactive status. If reactivated as a rail line, viewer awareness would become strong. These designations and policies suggest high local values.

Recreational Viewers (State Route 1 and Rail Trail)

Recreational viewers tend to have a high sensitivity to the visual environment when they are participating in outdoor recreation. Although tennis players have a very specific focus, viewers at the county park and bicyclists on the local streets have a wider focus. The designations and policies discussed above suggest high local values, especially because most of the recreational viewers are locals.

Religious Viewers (State Route 1 and Rail Trail)

Religious viewers at the churches with views of State Route 1 and the Rail Trail have moderate sensitivity to the surrounding visual environment. Their activity, arriving and leaving the church, generally preoccupies them. Their focus is on the church, rather than the highway or trail. However, the designations and policies discussed above suggest moderately high local values, as most of the people using the church are likely locals.

Commercial Viewers (State Route 1 and Rail Trail)

Commercial viewers in the corridor tend to have low to moderate sensitivity to the surrounding visual environment. Their activity, arriving and leaving the place of commerce, generally preoccupies them. Their focus is on the business, rather than the highway. However, these are primarily local businesses, so the designations and policies discussed above suggest moderately high local values in Santa Cruz County.

Local Street Viewers (State Route 1 and Rail Trail)

The local street viewers on the streets with views of State Route 1 and the Rail Trail generally have moderate sensitivity. Drivers and passengers on these roadways are usually focused on the road itself. Some bicyclists and pedestrians may be less focused on the roadways, but most of these streets have moderate traffic and/or narrow bikeways and sidewalks, requiring viewers to concentrate on the local street for safety. The county designations and policies suggest high local values.

Highway Users—Daily Commuter Viewers (State Route 1 and Rail Trail)

Daily commuter viewers have moderate to high viewer sensitivity, depending on their activity. Drivers are usually preoccupied with their driving, though congestion can result in more time to observe the surrounding visual environment. Passengers have time to observe. Drivers tend to focus more specifically on the road, while passengers tend to have a more expansive focus. These commuters are from the local or regional area. State and county designations and policies suggest moderate local values.

Highway Users—Tourist Viewers (State Route 1 and Rail Trail)

Tourist viewers have high viewer sensitivity. Although they have low familiarity with the views from State Route 1, the purpose of their drive is, in part, to observe their surrounding visual environment. Drivers are more preoccupied with their driving, though congestion can result in more time to observe their surroundings. Similar to daily commuters, passengers have time to observe, and drivers tend to focus more on the road, while passengers tend to have a more expansive focus. These tourist viewers are often from outside the region and do not have the same expectations as local users, but they would likely have high expectations due to the highway's reputation for scenic quality.

Highway Users—Transit Viewers (State Route 1 and Rail Trail)

Transit viewers have moderate to high viewer sensitivity. For viewers using transit for regular trips, their sensitivity is similar to that of the daily commuter passengers. If the transit viewers are only taking the trip occasionally or as tourists, their sensitivity would be similar to the tourist viewer passengers.

Group Viewer Response

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

Neighbors (Views to State Route 1 and Rail Trail)

- **Residential Viewers (State Route 1)—Moderate-High Viewer Response.** There are few residential viewers who can see State Route 1 in the middle ground views from their properties. The duration of their views varies from briefly to several hours. They may be preoccupied with other activities or observant of their surroundings. Residential viewers typically have strong awareness of the visual environment and high local aesthetic values.
- **Residential Viewers (Rail Trail)—High Viewer Response.** There are many residential viewers who can see the Rail Trail from their properties. These views are primarily in the middle ground and foreground. The duration of their views varies depending on proximity, vegetation and topography, but can last for several hours, depending on type of outdoor activity. Residential viewers typically have strong awareness of the visual environment and high local aesthetic values.
- **Recreational Viewers (State Route 1 and Rail Trail)—High Viewer Response.** State Route 1 and the Rail Trail vary between the foreground, middle ground, and background of the recreational viewer's view throughout the highway and Rail Trail segments. The number of viewers ranges from a few to approximately 30 at a time. The duration of their views varies with their activity from brief to multiple hours. They can be preoccupied or observant, depending on their activity. Recreational viewers typically have strong visual awareness and high local aesthetic values.
- **Religious Viewers (State Route 1 and Rail Trail)—Moderate Viewer Response.** There are two churches with views of State Route 1 and the Rail Trail, the Coastlands Church located on the southeast corner of the State Park Drive interchange, and the Episcopal Church of St Jon, located on McGregor Drive. Views from each are in the middle ground to background. It is possible for each church to have 100 or more viewers at a time during times of worship. The duration of their views is typically brief as they walk from the parking lot to the church entry. The Coastlands Church, however, has an outdoor event space where views would be

substantially longer if not for a wall that screens views to the State Route 1 and Rail Trail. Religious viewers are generally preoccupied with their activity and have moderate awareness of their surroundings. They typically have moderate local aesthetic values.

- **Commercial Viewers (State Route 1 and Rail Trail)—Moderate Viewer Response.** State Route 1 is in the middle ground of the views from commercial and office viewers, who typically number less than 12 at a time, per property. Their views of State Route 1 are usually brief to a few minutes. They are typically preoccupied with their activities, with their focus on the business rather than the highway. The views of the Rail Trail are in the foreground for commercial retailers along Soquel Drive in Aptos Village. These viewers have extended views of the Rail Trail that could last several hours. Commercial viewers typically have moderate local aesthetic values.
- **Local Street Viewers (State Route 1 and Rail Trail)—Moderate Viewer Response.** State Route 1 and the Rail Trail are in both the foreground and middle ground views for multiple local street viewers in any one day. Their view of the highway and Rail Trail is typically very brief, up to a few minutes. Local street viewers are typically preoccupied with their activity and focused on navigating the local street, though passengers, bicyclists, and pedestrians pay greater attention to their surroundings. Local street viewers typically have a moderately high local aesthetic value.

Users (Views from State Route 1 and Rail Trail)

- **Daily Commuter Viewers (State Route 1 and Rail Trail)—Moderate Viewer Response.** For daily commuters the view from State Route 1 and the Rail Trail is primarily in the foreground and middle ground. The density of vegetation screens most background views out. State Route 1 has thousands of daily commuters a day. The Rail Trail is likely used by no more than 50 people a day as a way to commute to their place of work. Views from State Route 1 are brief at any one location but encompass several minutes over the entirety of the segment. Drivers are usually preoccupied with driving and specific in their focus on the road, while passengers are generally observant of the surroundings with a more general focus. Given the difference in commuter speed, the duration of views from the Rail Trail are substantially longer, but typically no longer than 10–15 minutes. Most daily commuters are local, so they typically have moderate to high local aesthetic values.
- **Tourist Viewers (State Route 1)—High Viewer Response.** For tourist viewers, the view of State Route 1 is the same as for daily commuters. The views from State Route 1 are brief at any one location but may be several minutes over the entirety of the segment. Like the commuter viewers, drivers are usually preoccupied with driving and specific in their focus on the road, while passengers are generally observant of the

surroundings with a more general focus. Most of these viewers are not local, but they have high expectations for their view.

- **Tourist Viewers (Rail Trail)—High Viewer Response.** For tourist viewers, the view of the Rail Trail is more similar to that of a recreational user. Hikers and cyclists tend to have a high sensitivity to their environment when participating in outdoor recreation. The area surrounding State Route 1 is a destination due to its reputation for ocean views and unique natural environment. Depending on mode of transport (walking versus biking) the duration of views from the Rail Trail may be up to 5 to 10 minutes at any given time. While tourist viewers are not typically locals, they have a similarly high expectation for views.
- **Transit Viewers (State Route 1 and Rail Trail)—Moderate Viewer Response.** For transit viewers, the view of State Route 1 is similar to that of daily commuters. State Route 1 currently has only a few regional bus routes using the highway. While the rail line is active, it is possible that the common carrier could file for abandonment of freight operations with the Surface Transportation Board along the Santa Cruz Branch Rail Line at any time. The expansion proposed by this project would open up alternatives for more transit viewers in the future but, as of 2019, transit viewers were approximately 85 or less per day on average (Hurrell pers comm.). The views from both State Route 1 and the Rail Trail are brief at any one location but may encompass several minutes over the entirety of the segment. Similar to passengers in the daily commuter and tourist viewer groups, users are generally observant of the surroundings with a more general focus and a moderate expectation for views.

Environmental Consequences

Build Alternative

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental. The ratings used to evaluate visual quality, visual character, viewer exposure, and viewer response use a numeric rating system from high (5) to low (1). The ratings were determined using the following ranges: high (5.00 to 4.50), moderate-high (4.49 to 3.50), moderate (3.49 to 2.50), moderate-low (2.49 to 1.50), and low (1.49 to 1.00).

Cumulative impacts and temporary impacts due to the contractor's operations are also considered. A generalized Federal Highway Administration visual impact assessment process is illustrated in Figure 2-11.

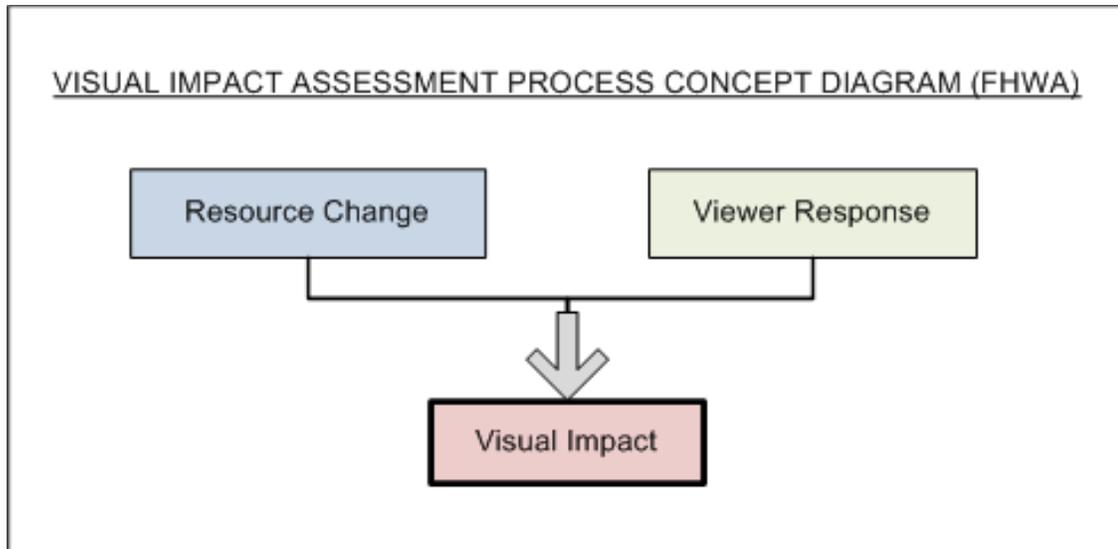


Figure 2-11. Visual Impact Assessment Process Concept Diagram

Table 2-34 provides a reference for determining levels of visual impact by combining resource change and viewer response.

Table 2-34. Visual Impact Ratings Using Viewer Response and Resource Change

Visual Change Category	Low Viewer Response	Moderate-Low Viewer Response	Moderate Viewer Response	Moderate-High Viewer Response	High Viewer Response
Low Resource Change	Low	Moderate-Low	Moderate-Low	Moderate	Moderate
Moderate-Low Resource Change	Moderate-Low	Moderate-Low	Moderate	Moderate	Moderate-High
Moderate Resource Change	Moderate-Low	Moderate	Moderate	Moderate-High	Moderate-High
Moderate-High Resource Change	Moderate	Moderate	Moderate-High	Moderate-High	High
High Resource Change	Moderate	Moderate-High	Moderate-High	High	High

Visual Impacts by Visual Assessment Unit

Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a number of key views associated with visual assessment units that would most clearly demonstrate the change in the project’s visual resources. Key views also represent the viewer groups that have the highest potential to be affected by the project considering exposure and sensitivity. In addition, these key views will be analyzed for each proposed alternative.

The project would be located entirely within an urbanized area, and no rural areas would be affected. There are no scenic vistas or officially designated scenic routes associated with the proposed project. As such, scenic vistas and scenic routes would not be affected by the project, and these resources are not discussed further. Therefore, the analysis focuses on whether the project would conflict with applicable zoning and other regulations governing scenic quality or result in changes in light and glare.

The minimization measures depicted in the visual simulations include details such as wall textures and new landscaping of disturbed areas. The aesthetic treatments of structures and specific plant types depicted are representative only. The actual types of treatments, colors, and landscape would be designed in collaboration with Caltrans' District 5 Landscape Architect.

The following sections describe and illustrate visual impacts by visual assessment unit, compare existing conditions to the proposed alternatives, and include the predicted viewer response. Visual simulations reflect future conditions, approximately fifteen years from construction of the project.

State Route 1 Visual Assessment Unit

The State Route 1 visual assessment unit extends from just west of the State Park Drive/State Route 1 interchange to just east of the Freedom Boulevard/State Route 1 interchange. Most of the vegetation along State Route 1 is concentrated along the corridor between the northern and southern Aptos rail bridges that is comprised of a mixed canopy dominated by redwoods, oaks, and sycamores. The vegetation is especially dense where Aptos Creek crosses the corridor. At several locations, adjacent residential properties can be seen within this visual assessment unit, mostly along the Soquel Drive frontage road, near the Freedom Boulevard northbound on-ramp.

There are three key views for the State Route 1 visual assessment unit—Key Views 1–3 that are shown in Figures 2-12 through 2-14, respectively. Viewers at Key View 1, looking toward the southern Aptos rail bridge, are primarily users of the highway. Viewers at Key View 2, from the southern Aptos rail bridge, include recreational and commuter bicycle and pedestrian users along the proposed Coastal Rail Trail Segment 12. Viewers at Key View 3 include daily commuters, tourists, pedestrians, and transit viewers from the overcrossing at Rio Del Mar.

The proposed project falls within Classified Landscape Freeway segments along State Route 1 that extend between post miles 7.83 and 9.68, and 10.22 and 11.18 (Caltrans 2020b). Caltrans defines a classified landscaped freeway as “a section of freeway with ornamental vegetation planting that meets the criteria established by the California Code of Regulations, Outdoor Advertising Regulations, Title 4, Division 6. As identified in California Code of Regulations, Title 4 Sections 2507 and 2508, a Classified Landscape

Freeway must have planting areas that are at least 1,000 feet in length and may have gaps no greater than 200 feet. The proposed project would remove vegetation along the Classified Landscaped Freeway segments to accommodate widening, creating gaps in vegetation larger than 200 feet. However, the project would include replacement landscaping along the affected areas of State Route 1, which would include the replacement of trees that would become skyline trees after several years. Therefore, it is anticipated that the designation of these Classified Landscaped Freeway segments would not be affected.

Changes to nighttime lighting within this visual assessment unit would be minimal. It is anticipated that any lights removed during construction would be reinstalled at a similar location, and no additional lighting is proposed. Therefore, there would be no notable changes in nighttime lighting. Changes in daytime and nighttime glare are discussed below.

Key View 1

Description

Key View 1 (Figure 2-12) was taken from northbound State Route 1 at the eastern overcrossing (existing rail bridge) looking west (*as shown and described in the Tier I Visual Impact Assessment from July 2013 and adapted as applicable for this report*). The view is from the perspective of the highway traveler in the right lane.

Existing Visual Character/Quality

The existing view includes the existing concrete barrier along the highway corridor, with a clear view of State Route 1 heading in the northbound direction, and clearly captures the existing condition of the southern Aptos rail overcrossing and concrete abutments. This view also captures some of the southbound traffic. The visual character of this portion of the highway is well vegetated in a manner that isolates the highway within the landscape, and the corridor dominated by the relatively straight lines represented by the highway lanes and vegetative border. Mature groupings of redwoods, oak, and eucalyptus flank both sides of the roadway and are the dominant characteristic of this view. Dense underbrush and nonnative vines obstruct views into neighboring properties. Mature redwoods and oaks can also be seen in the background that help to unify this view. The view is contrasted by the overcrossing height warning sign and overhead powerlines that cross with the southern Aptos rail easement. The dominant colors are contrasting dark gray (pavement) and green (vegetation). The smooth texture of the roadway surface contrasts with the coarse texture of the vegetation. During sunny days, shadow patterns from the trees can create irregular shades of gray.

Vividness is moderate-high as this portion of the corridor provides high-quality views of mature trees that contrast against the blue sky and the southern Aptos rail bridge screens views further down the highway; however, the

bridge, which has fallen into disrepair, is a focal point that slightly degrades the quality of the view. Intactness is moderate because the vegetative border creates a coherent view, but the bridge and center guardrail dominate this viewpoint as a contrasting presence to the natural surrounding elements. Unity is moderate-high because the roadway fits well into the landscape, but the bridge creates a visual barrier to views beyond. Overall, the existing visual quality of Key View 1 is considered moderate-high due to the existing vegetation that overhangs the highway, frames the existing railroad bridge, and creates an intimate appearance to the highway corridor combined with the existing bridge that is aged, in disrepair, and detracts from the visual quality.

Proposed Project Features

As shown in the simulation in Figure 2-12, a prefabricated pedestrian and bicycle bridge would be constructed in place of the existing southern Aptos rail bridge shown in the existing view. A new rail bridge would be constructed immediately behind the pedestrian and bicycle bridge, and the abutments of both bridges would be set back to allow the future Bus-on-Shoulder lane configuration. The highway would be wider than existing, with an additional 12-foot-wide auxiliary lane in each direction and shoulders to meet current standards. The wider roadway would equate to a longer bridge. The median barrier would be rebuilt to current safety standards and a retaining wall would be placed along the southbound traveled way to minimize tree removals. Large trees would be planted to replace trees removed for construction on all sides of the bridges and native shrubs and seasonal flowering plantings would be planted to replace screen planting that previously obstructed views into neighboring properties.

Viewer Response

Viewer exposure is moderate-high because viewers have middle ground views of project features, the number of vehicles is estimated at approximately 47,000 or more per day on mainline State Route 1, and the duration of their views varying from a few seconds to a few minutes (CDM Smith 2021). Viewer sensitivity is also moderate-high with viewers focused on the corridor itself, the fact that the vast majority are locals, and high local values as indicated by the number of policies and regulations related to aesthetics and visual resources. The overall level of viewer response would be moderate-high.

Resource Change

In the foreground, visibility of vehicles traveling in the southbound lanes would be more obscured due to the height of the median barrier. In the middle ground, the existing, enclosed feeling of this viewpoint would be replaced by a more open and lighter aesthetic quality due to tree removal for construction and open steel truss pedestrian bridge design. Due to the width of the rail trail

corridor, some skyline trees would be removed and cannot be replaced due to safety or geometric requirements. In the background, the addition of retaining walls along the southbound lanes and safety barrier along the northbound lanes may increase reflected light through this zone. The dominant colors would be earth tones to subtly contrast with the existing and proposed vegetation. The horizontal scale of the pedestrian and rail bridges would dominate the view. Daytime and nighttime glare would remain moderate because trees remaining along the highway and replacement plantings would provide shading to minimize glare coming from the highway pavement and structures, and it would screen glare from adjacent development. The resulting visual character would remain moderate-high.

The existing visual quality is moderate-high with moderate-high vividness and intactness and moderate unity. Although the proposed project would remove some of the predominant skyline canopy trees and screening plant material, the design and coloring of the proposed bridge enhances the aesthetic quality at this location and would be an improvement over the appearance of the existing bridge. As a result, the vividness would remain moderate-high, intactness would be improved to moderate-high, and unity would remain moderate-high. The resulting visual quality would remain moderate-high, and the overall resource change would be low.



Source: Mark Thomas, April 2022.

Figure 2-12. Key View 1, Existing View and Simulated Conditions—from State Route 1 looking North toward the Rail Trail Visual Assessment Unit

Key View 2

Description

Key View 2 (Figure 2-13) was taken from the existing southern Aptos rail bridge looking towards the west (northbound). The view is from the perspective of a future trail user and generally that of highway travelers, as they approach the Aptos Creek bridge from the east.

Existing Visual Character/Quality

The existing view includes the existing concrete barrier along the highway corridor, with a clear view of State Route 1 heading in both directions. The visual character of this portion of the highway is very well vegetated in a manner that isolates the highway within the landscape, and the corridor is dominated by the relatively straight lines of the highway lanes and vegetative border. Mature groupings of redwoods, oak, and eucalyptus flank both sides of the roadway and are the dominant characteristic of this view. The denseness, maturity, and proximity of the existing vegetation to the highway creates an intimate experience to the highway and Rail Trail users, which acts to reduce the overall scale of the trail and highway corridors in the environment. Dense underbrush and nonnative vines also obstruct views into neighboring properties. Mature trees can also be seen in the background that help to unify this view. The dominant colors are contrasting dark gray (pavement) and green (vegetation). The smooth texture of the roadway surface contrasts with the coarse texture of the vegetation. During sunny days, shadow patterns from the trees can create irregular shades of gray.

Vividness is moderate-high because this portion of the corridor provides high-quality views of mature trees that contrast against the blue sky. Intactness and unity are moderate-high because the vegetative border creates a coherent view and, even though the wide roadway corridor is a contrasting presence to the natural surrounding elements, the roadway fits well into the landscape. Overall, the existing visual quality of Key View 2 is considered moderate-high due to the existing vegetation that frames the highway and creates an intimate appearance to the highway corridor.

Proposed Project Features

As shown in the simulation in Figure 2-13, the highway under the Build Alternative would be wider than the existing, due to the addition of one new 12-foot-wide auxiliary lane in each direction and expanded shoulders that would meet current standards. The median barrier would be rebuilt to current safety standards and a retaining wall would be placed along the southbound traveled way to minimize tree removals and retain the Moosehead Drive configuration. A sound wall would also be placed along the southbound shoulder, adjacent to the southern Aptos rail bridge, to minimize traffic noise for residents along Carrera Circle and the eastern end of Moosehead Drive. The retaining wall and sound wall would introduce new vertical surfaces along

this segment of highway, but aesthetic treatments would ensure that they blend with the natural landscape and do not detract from views. In addition, trees that would become skyline trees would be planted to replace trees removed for construction near the new Moosehead Drive retaining wall and along the north side of the highway, and native shrubs and plantings would replace screen plantings that previously obstructed views into neighboring properties.

Viewer Response

Viewer exposure is moderate-high because viewers have middle ground views of project features, the number of vehicles is estimated at approximately 47,000 or more per day on mainline State Route 1, there would be new viewers accessing the Rail Trail, and the duration of their views varying from a few seconds to a few minutes (CDM Smith 2021). Viewer sensitivity is also moderate-high, given the importance of vegetation and large trees, as well as the general character of the area and with viewers focused on the corridor itself, and the fact that the vast majority of viewers are locals with high local values as indicated by the number of policies and regulations related to aesthetics and visual resources. The overall level of viewer response would be moderate-high.

Resource Change

In the foreground, visibility of vehicles traveling in both directions would be slightly expanded due to the removal of vegetation along the edge of the highway and the widened corridor. In the middle ground, the existing, enclosed feeling of this viewpoint would be replaced by one that is slightly more open and brighter due to tree removal for construction. Daytime and nighttime glare would remain moderate because trees remaining along the highway and replacement plantings would provide shading to minimize glare coming from the highway pavement and structures, and it would screen glare from adjacent development. The addition of a retaining wall and sound wall along the southbound lanes may slightly increase reflected glare through this zone. However, the use of vines and other vegetation could, over time, reduce the visual impact of the walls and glare coming from the sound and retaining walls. The dominant colors would be earth tones to subtly contrast with the existing and proposed vegetation. The visual character would be reduced from moderate-high to moderate.



Source: Mark Thomas, April 2022.

Figure 2-13. Key View 2, Existing View and Simulated Conditions—from the Existing South Aptos Rail Bridge looking West toward the State Route 1 Visual Assessment Unit

The existing visual quality is moderate-high with moderate-high vividness, intactness, and unity. Although the proposed project would remove some of the predominant skyline canopy trees and screening plant material to construct the wider highway, retaining wall, and sound wall, the design and coloring of the proposed retaining wall and sound wall would ensure these features recede in the view. In addition, vegetation planted along the highway would mature over time to replace some of the vegetative screening that would be removed. As a result, the vividness would be slightly reduced but would remain moderate-high and intactness and unity would be lowered to moderate. The resulting visual quality would be reduced to moderate, and the overall resource change would be moderate-low.

Key View 3

Description

Key View 3 (Figure 2-14) was taken from the Freedom Boulevard overcrossing looking towards the west (northbound). The view is from the perspective of a local street user and intended to represent the general view of highway travelers as well for purposes of this study.

Existing Visual Character/Quality

The existing view from the Freedom Boulevard overcrossing overlooking State Route 1 includes southbound and northbound lanes in the foreground, middle ground, and background, with a thick border of mature vegetation on the southbound side and relatively open views to the Soquel Drive frontage road along the northbound side. Mature pines flank the left side of the roadway in the foreground and middle ground. Redwood trees and mixed deciduous trees are predominant in the foreground on the right side, with the view of businesses along Soquel Drive predominant in the middle ground view. There is little underbrush and screening between businesses and the highway, which allows relatively clear views both into and out of the highway corridor. Brief glimpses (seconds) of structures and topography are visible beneath the mature canopies. Longer views (minutes) of the commercial uses are possible in times of reduced speed due to heavy traffic. The dominant colors are contrasting gray (pavement) and green (vegetation). The smooth texture of the highway contrasts with the coarse texture of the vegetation. During sunny days, shadow patterns from the trees can create irregular shades of gray.

The overall visual quality is moderate. Vividness is moderate because this portion of the corridor is not as distinct as other segments, there is no focal point, and a mix of visual elements comprises a somewhat typical suburban view. In addition, the center median is not planted and is dirt, with the lack of grass or vegetation, slightly degrades the view. Intactness is moderate because the visual quality of the existing roadway and businesses dominates this viewpoint as a contrasting presence to the natural surrounding elements.

Unity is moderate due to the fairly unified corridor that is disrupted by the dirt median and sparse vegetation along the commercial area, along a segment of highway that otherwise is bordered by mature trees.

Proposed Project Features

As shown in the simulation in Figure 2-14, the median would be narrowed, paved, and a concrete barrier added to accommodate an additional lane in each direction. The shoulders would be widened to meet current standards and painted red for buses directly adjacent to the interchange. The drainage ditch in the median would be relocated along the northbound travel lanes. The northbound on-ramp would be realigned slightly, and a contrasting surface treatment added to the gore of the ramp. The median barrier would be rebuilt to current safety standards and shoulders on the left side of this view (southbound lanes) would remain relatively untouched. Replacement plantings would be installed along disturbed areas.

Viewer Response

Viewer exposure is moderate-high because, while the highway serves thousands of travelers per day, the photograph is from the perspective of a local street user on the overcrossing and the number of viewers from this location would range from approximately 5,000 to 7,000 per day (Hurrell pers. comm.). The widened highway and Bus-on-Shoulder lanes would be noticeable to those on the highway, as well as those on the overcrossing. Duration of views for those local street users on the overcrossing would likely be less than a minute. Highway users would have a substantially longer view duration given that most of the improvements would stretch the length of the segment. Viewer sensitivity is also moderate-high, given the importance of vegetation and large trees, the general character of the area, and the viewers focused on the corridor itself, as well as the fact that the vast majority are locals with high local values as indicated by the number of policies and regulations related to aesthetics and visual resources. The overall level of viewer response would be moderate-high.

Resource Change

The highway would appear wider to travelers on State Route 1 and from the overcrossing at Freedom Boulevard. In the foreground, visibility of vehicles traveling in both directions would be slightly expanded due to the widened corridor. The width of paving would increase but would be in lieu of the existing bare ground in the median. This would create a more unified highway corridor. In the foreground and middle ground of the right side of this view some existing, low-quality shrubs would be removed to accommodate new highway features. However, new highway plantings would provide greater visual interest and minimize visual changes. In addition, the existing vegetation along the southbound lane of the highway would remain in place, retaining the aesthetic qualities that those trees provide. In the middle ground,

the existing, enclosed feeling of this viewpoint would be replaced by one that is slightly more open and brighter due to tree removal for construction. The dominant colors would be grays in contrast with the existing and proposed vegetation. This change in appearance would not be outside of the anticipated views associated with the highway. Daytime and nighttime glare would remain moderate because trees remaining along the highway and replacement plantings would provide shading to minimize glare coming from the highway pavement and structures, and it would screen glare from adjacent development. The resulting visual character would remain moderate.

The existing visual quality is moderate with moderate vividness, intactness, and unity. Although the proposed project would widen to the inside and remove some vegetation along the ramp, paving the median would create a more unified corridor and replacement plantings along the highway would mature over time to provide aesthetic relief of equal or greater quality compared to existing conditions. As a result, the vividness, intactness, and unity would be slightly improved but would remain moderate. The resulting visual quality would remain moderate, and the overall resource change would be low.



Figure 2-14. Key View 3, Existing View and Simulated Conditions—from Freedom Boulevard overcrossing looking west (northbound)

Coast Rail Trail Visual Assessment Unit

Key View 4

Description

Key View 4 (Figure 2-15) was taken in Aptos Village at the intersection of Trout Gulch Road and Soquel Drive looking west. The view is from the perspective of local street and trail users.

Existing Visual Character/Quality

The existing view includes Trout Gulch Road and the rail crossing in the foreground with Soquel Drive and the railroad tracks in the middle ground and background. Commercial and retail development dominates the middle ground and background of the view. Vegetation is minimal and therefore views to adjacent commercial properties are exposed for durations of up to several minutes. The overall visual character is dominated by both horizontal lines (streets and rail tracks) and vertical lines (structures). The dominant colors are contrasting gray (pavement) and light tan (structures). The smooth texture of the roadways contrast with the rigid texture of nearby structures. The scale of the roadways and Rail Trail dominate those of the vegetation and surrounding commercial buildings. Visually, the railroad tracks, Trout Gulch Road, Soquel Drive, and off-street parking dominate the foreground and middle ground for viewers.

The overall visual quality is moderate-low. Vividness is moderate-low because there is no focal point and a mix of signage, parked cars, and other visual elements. Intactness is moderate-low because the existing roadway and signage dominates this viewpoint. Unity is moderate-low because the rail tracks and off-street parking, combined with signage, striping, and other visual distractions, visually segment views between commercial uses on either side of the tracks.

Proposed Project Features

As shown in the simulation of the ultimate trail configuration in Figure 2-15, the railroad tracks would remain in their current location (the trail would be in place of the rail in the interim condition). The parking spaces north of the rail alignment would be removed and replaced with a paved Class 1 bike and pedestrian trail. Gravel would be placed between the fence and rail ballast to discourage weed growth. A small post and wire fence would be added between the tracks and the proposed trail for pedestrian safety and to help visually define the trail. Additionally, a raised curb would separate the trail from the off-street parking lot to separate uses. New rail crossing arms and pavement markings for the Trout Gulch Road trail crossing would replace the existing infrastructure and markings.



Figure 2-15. Key View 4, Existing View and Simulated Conditions—from the Intersection of Trout Gulch Road and Soquel Drive Looking West

Viewer Response

Viewer exposure is moderate because the photograph is from the perspective of a local street user and recreationist on the roadway and the number of views from this location would be limited to several hundred per day. In addition, the Rail Trail would be noticeable to viewers for up to a few minutes at a time, while adjacent commercial users would likely have substantially longer viewing durations. Viewer sensitivity is also moderate-high, with viewers focused on the corridor itself, most viewers being tourists or locals, and high local values as indicated by the number of policies and regulations related to aesthetics and visual resources. The overall level of viewer response would be moderate-high.

Resource Change

No major impacts on the existing roadways or vegetation are anticipated. The foreground of this viewpoint would consist mainly of the rail line and trail, with the overall character being dominated by the rail line and gravel treatment. The addition of a trail, gravel shoulders, post and wire fence, and curbing would replace some asphalt parking lots and the currently unmaintained rail right-of-way, which is overgrown with weeds in many locations. Restriping of Trout Gulch Road and the replacement of rail crossing arms would be more consistent with the surrounding central business district aesthetic context. Therefore, the appearance of the Rail Trail would not degrade the anticipated views associated with Soquel Drive and the adjacent commercial properties, and changes to the visual quality and character are anticipated to be improved slightly by the unifying feature associated with the proposed trail. The resulting visual character would be slightly improved but would remain moderate.

The existing visual quality is moderate-low with moderate-low vividness, intactness, and unity. Although the proposed project would remove off-street parking, removing the signage and cars and replacing the parking lot with gravel and the paved trail would reduce visual clutter and open up views to create a more unified corridor. This would improve visual quality compared to existing conditions. As a result, the vividness, intactness, and unity would be improved to moderate. The resulting visual quality would be improved to moderate, and the overall resource change would be moderate-low.

Project Visual Impact Summary

Table 2-35 provides the findings from each key view's analysis, summarizing the anticipated change to the visual resource, the anticipated viewer response to that change, and the overall anticipated visual impact. A summary of project visual impacts by key view follows Table 2-35. The proposed project would have two substantial visual effects through much of the corridor: (1) loss of mature vegetation that would be required for the construction of sound walls, retaining walls, and the widening of the State Route 1 and the Aptos Creek bridge, and (2) blocking of existing residential views by sound walls

and retaining walls, most notably those properties which are directly adjacent to Aptos Creek and the Rail Trail.

Changes in daytime and nighttime light and glare would be minimal. In addition, the proposed project falls within two Classified Landscape Freeway segments along State Route 1 that that extend between PMs 7.83-9.68 and 10.22-11.18. The proposed project would remove vegetation along the Classified Landscaped Freeway segments to accommodate widening, creating gaps in vegetation larger than 200 feet, but would include replacement landscaping along the affected areas of State Route 1. This would include the replacement of skyline trees. Therefore, it is anticipated that the designation of these Classified Landscaped Freeway segments would not be affected.

Table 2-35. Summary of Key View Narrative Ratings

Visual Assessment Unit	Key View	Viewer Response	Resource Change	Visual Impact
State Route 1	1	Moderate High	Low	Moderate
State Route 1	2	Moderate High	Moderate Low	Moderate
State Route 1	3	Moderate High	Low	Moderate
Rail Trail Segment 12	4	Moderate High	Moderate Low	Moderate

Summary of Project Visual Impacts by Key View

Key View 1 (Near South Aptos Underpass)

From Key View 1, views of a prefabricated pedestrian and bicycle bridge would be seen in place of the existing southern Aptos rail bridge, and a new rail bridge would be constructed immediately behind the pedestrian and bicycle bridge. The highway would be wider than the existing highway, with one additional 12-foot-wide auxiliary lane in each direction and shoulders to meet current standards. These changes would result in the removal of mature vegetation and the placement of sound walls and retaining walls. These changes would affect the views of adjacent residential, recreational, and local street viewers, as well as the highway user’s views of the natural vegetated environment of the State Route 1 corridor.

The resulting visual impact from changes to the existing view are anticipated to be moderate. It is expected that the removal of mature vegetation would lessen the natural edge aesthetic of the highway and sound walls would permanently block views out from the corridor. However, the height of the remaining vegetation behind the new sound walls would allow some “borrowed landscape” effect, and the use of vines and shrub plantings along the walls and revegetating disturbed areas could soften the appearance of the walls and areas affected by vegetation removal. The overall visual quality and character, with minimization measures, are anticipated to remain moderate-high, with moderate-high vividness, intactness, and moderate unity.

Key View 2 (South Aptos Bridge looking West)

Primary changes from Key View 2 include a wider highway, and the addition of a retaining wall, a sound wall, and removal of mature vegetation. The retaining wall and sound wall would introduce new vertical surfaces along this segment of highway.

The resulting visual impact from changes to the existing view are anticipated to be moderate. The removal of mature vegetation would lessen the natural edge aesthetic of the highway and the retaining wall and sound wall would permanently block views. However, the height of the remaining vegetation behind the new sound walls would allow some “borrowed landscape” effect, and the use of aesthetic treatments on the walls, vines and shrub plantings along the walls, and revegetating disturbed areas could soften the appearance of the walls and areas affected by vegetation removal. The overall visual quality and character, with minimization measures, is anticipated to be reduced to moderate, with moderate-high vividness and moderate intactness and unity.

Key View 3 (Freedom Boulevard Overcrossing looking West)

From Key View 3, primary changes to views along State Route 1 would include a narrowed, fully paved median and a concrete barrier, and widened shoulders. Additionally, the northbound on-ramp would be realigned slightly, and a contrasting surface treatment added to the gore of the ramp.

The resulting visual impact from changes to the existing view are anticipated to be moderate. Overall visual quality of the view would be improved due to the removal of the existing dirt median and the existing character would remain consistent. The degree of change to the visual character and visual quality is anticipated to be relatively minor. The overall visual quality and character, with minimization measures, is anticipated to remain moderate, with moderate vividness, intactness, and unity.

Key View 4 (Intersection of Trout Gulch Road and Soquel Drive looking West)

Primary changes from Key View 4 include replacement of parking lots with the addition of the trail, gravel shoulders, post and wire fence, and curbing. While these changes would occur adjacent to the rail for the ultimate trail configuration as shown in Key View 4, under the interim condition, the trail would replace the rail.

The resulting visual impact from changes to the existing view are anticipated to be moderate. The proposed improvements from this perspective improve the overall visual quality of the view. This is mostly due to the existing rail corridor, off-street parking, and signage detracting from the existing view due to visual clutter. The change to the visual character and visual quality is anticipated to reduce visual clutter and provide greater visual continuity between commercial uses on either side of the rail line and trail. In addition,

the proposed improvements remain consistent with what is expected for a local street for affected viewers. The overall visual quality and character, with minimization measures, is anticipated to improve from moderate-low to moderate, with moderate vividness, intactness, and unity.

No-Build Alternative

Under the No-Build Alternative, the existing lane configuration and width of State Route 1 would remain. No widening of State Route 1 would occur, and auxiliary lanes, Bus-on-Shoulder improvements, and the Coastal Rail Trail would not be built and there would be no visual impacts on the existing visual character, visual quality, or affected viewer groups from the proposed project.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and mitigation measures would be incorporated into the project to avoid and minimize visual impacts.

- **AMM-VA-1:** Work with the community during preliminary design to develop aesthetic guidelines for the project improvements through a formalized structure that allows community input. Caltrans District 5 Landscape Architecture shall be consulted in this process.
- **AMM-VA-2:** During design and construction, save and protect as much existing vegetation in the corridor as feasible, especially eucalyptus and other trees that would become skyline trees (revised in final environmental document to clarify that skyline trees would take time to grow to maturity).
- **AMM-VA-3:** Survey exact locations for trees (by arborist) and include in the plan set.
- **AMM-VA-4:** Protect the drip zone of isolated trees and provide temporary fencing.
- **AMM-VA-5:** Protect large areas of existing plantings and preserve with temporary fencing.
- **Mitigation Measure-VA-6:** During design and construction, develop construction plans that apply aesthetic treatments to the sound walls. Aesthetic treatment of the sound walls shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-7:** Include vine plantings on one or both sides of sound walls where feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, include vine portals in the design of the wall to accommodate vine access to both sides of the wall. Planting plans shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-8:** During design and construction, develop construction plans that apply aesthetic treatments to the retaining walls.

Aesthetic treatment of the retaining walls shall be approved by Caltrans District 5 Landscape Architecture.

- **Mitigation Measure-VA-9:** During design and construction, develop construction plans that apply aesthetic treatments to the proposed bridges in the corridor. Aesthetic treatment of the proposed bridges shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-10:** If bridge rail is used at the creek crossing retaining walls, use Type 80 rail with aesthetic treatment. Aesthetic treatment and bridge rail type selection shall be approved by Caltrans District 5 Landscape Architecture.
- **AMM-VA-11:** Include aesthetic treatments on concrete median barriers consistent with the visual character of the corridor and the adjacent community. Aesthetic treatment of the concrete median barriers shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-12:** Replace existing chain link fencing between State Route 1 and adjacent frontage roads with ornamental fencing (applies where there is no sound wall). Ornamental fencing type selection shall be approved by Caltrans District 5 Landscape Architecture.
- **AMM-VA-13:** During design and construction, landscape and revegetate disturbed areas to the greatest extent feasible (given Caltrans setback and maintenance requirements). Planting plans shall be approved by Caltrans District 5 Landscape Architecture.
- **AMM-VA-14:** Include trees that will mature into skyline trees in the planting pallet to reduce the scale of the new highway elements. Planting palette shall be approved by Caltrans District 5 Landscape Architecture.
- **AMM-VA-15:** Include infill shrub planting between State Route 1 and adjacent frontage roads to the maximum extent possible. Planting plans shall be approved by Caltrans District 5 Landscape Architecture.
- **AMM-VA-16:** Include vines on a minimum of 20% of the fencing between State Route 1 and adjacent frontage roads. Planting plans shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-17:** Where horticulturally appropriate, provide a permanent irrigation system for all plantings. Irrigation plans shall be approved by Caltrans District 5 Landscape Architecture.
- **Mitigation Measure-VA-18:** Include an extended 3-year maintenance/establishment period as part of the construction period to provide a single source of maintenance during the construction and through the establishment of vegetation.

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Personal Communications

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2.1.9 Cultural Resources

Regulatory Setting

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include the following.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation (Caltrans) went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council on Historic Preservation’s regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration’s responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code 327).

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as “unique” archaeological resources. California Public Resources Code Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the California Register of Historical Resources and, therefore, a historical resource. Historical resources are defined in Public Resources Code Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term “tribal cultural resources” to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in Public Resources Code Section 21074(a), a tribal cultural resource is a California Register of Historical Resources or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native

American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in Public Resources Code Section 21083.2.

Public Resources Code Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with Public Resources Code Section 5024 are outlined in a Memorandum of Understanding (MOU) between the Department and State Historic Preservation Officer, effective January 1, 2015. For most Federal-aid projects on the State Highway System, compliance with the Section 106 Programmatic Agreement will satisfy the requirements of Public Resources Code Section 5024.

Affected Environment

This section was prepared using information from the *Historic Property Survey Report* (Caltrans 2022), which includes the *Archaeological Survey Report* (Far Western Anthropological Research Group, Inc. 2022) and *Historical Resources Evaluation Report* (Brunzell Historical 2022). These reports include the study methodologies, analysis, Native American consultation, and findings for identifying historic resources and historic properties and assessing impacts.

Area of Potential Effects

The Area of Potential Effects for the project was established by Caltrans in accordance with Section 106 Programmatic Agreement. The Area of Potential Effects for archaeological resources and the Area of Potential Effects for architectural/built resources are not the same for the project and are described below.

Archaeological Area of Potential Effects

The current project footprint encompasses a total of 62.8 acres and includes the Caltrans right-of-way, private property, and all possible areas of horizontal and vertical direct impacts that have been included in the design plans to date. The Area of Potential Effects was established as both the horizontal and vertical depth maximum potential extent of direct impacts resulting from the project and the area of direct impact.

Architectural/Built Environment Area of Potential Effects

The architectural/built environment Area of Potential Effects consists of the project footprint and the assessor's parcels that intersect the footprint; it is the maximum potential extent of direct and indirect effects resulting from the project. The Area of Potential Effects for potential direct impacts was established as the project footprint plus a 50-foot buffer. The direct project footprint includes all construction easements, access routes, and staging and construction areas. The Area of Potential Effects for potential indirect impacts was generally established as the legal parcels adjacent to where potential direct impacts would occur outside of existing Caltrans or railroad right-of-way.

The term "Area of Potential Effects" is used generally in this section to refer to both the archaeological and architectural Area of Potential Effects, when not specified otherwise.

Research Methodology

Investigations for cultural resources include the Archaeological Survey Report (confidential) prepared for the Tier I/Tier II Environmental Impact Report/Environmental Assessment. The Program used a tiered approach for reviewing and implementing corridor improvement projects of which this project is a part. Far Western Anthropological Research Group, Inc. (Far Western), supported the Tier I environmental study, which included the survey of the Tier I footprint and testing of two archaeological resources within the Coastal rail Trail alignment.

Investigations include records searches, background research, Native American and historical society consultation, and archaeological and architectural field surveys.

Records Search

Archaeological Resources Records Search

On July 22, 2020, a records search was conducted by staff at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University in Rohnert Park, California. The records search consulted the California Historical Resources Information System base maps of previously recorded cultural resources and previously conducted cultural resources studies for the Area of Potential Effects and all areas within 0.25 mile thereof. Additional sources of information, including historic maps (U.S. Geological Survey and General Land Office), historic aerial photographs, and the California State Lands Commission's Shipwreck Database, were reviewed to determine areas with a high potential for the presence of historic-period and prehistoric sites.

The records search identified nine cultural resources within the rail trail corridor. One resource is a precontact archaeological site with a minor

historic-era component, seven are built environment resources, and one multicomponent precontact and historic-era complex is directly adjacent to the Area of Potential Effects.

Architectural Resources Records Search

The California Historical Resources Information System conducted a records search on July 22, 2020, and a supplemental records search request on January 21, 2021. The records search included the Area of Potential Effects and an additional 0.25-mile radius around the project area, and included a review of the following inventories:

- California Inventory of Historic Resources (Office of Historic Preservation 1976)
- Survey of Surveys: A Summary of California's Historical and Architectural Resource Surveys (Office of Historic Preservation 1989)
- California Points of Historical Interest (Office of Historic Preservation 1992)
- California Historical Landmarks (Office of Historic Preservation 1996)
- Built Environment Resources Directory will (Office of Historic Preservation 2020)

The records search identified three historic properties or previously recorded historical resources within the Area of Potential Effects or the 0.25-mile radius around the Area of Potential Effects:

- Bay View Hotel, 8041 Soquel Drive (Map Reference #10)
- Aptos Village Historic District (multiple addresses)
- Aptos Creek Trestle Footings

Nine historic-period properties within the Area of Potential Effects or the 0.25-mile radius have been determined ineligible or recommended ineligible through survey evaluation: three bridges, one religious property, three single-family residences, one apartment building, and one commercial property. The records search indicated that 31 previous cultural resource studies have been undertaken within 0.25 mile of the Area of Potential Effects.

Consultation with Interested Parties

See Chapter 4, Comments and Coordination for the cultural resources consultation and outreach process for the project.

Field Methods

Pedestrian Survey

Most of the current proposed project footprint was previously surveyed as part of the Tier 1 study for high occupancy vehicle lane widening along State

Route 1 for Caltrans in 2003–2004. The Area of Potential Effects for that project extended from just east of Highway 17 near Branciforte Drive to Larkin Valley Road southeast of Aptos, covering the current project extent with the exception of the proposed rail trail corridor. The survey covered all accessible land within that project Area of Potential Effects, including existing roadway pavement, sloped cuts, introduced fill, and areas of visible ground surface within the Caltrans right-of-way, public lands outside the right-of-way, and private parcels. Transect intervals ranged between 5 and 10 meters, though dense grasses, shrubs, and poison oak, especially in the various creek crossings, made access difficult and limited ground visibility.

Far Western surveyed the 1.25-mile-long corridor of the proposed rail trail on August 28, 2020. The rail trail alignment follows a portion of the Southern Pacific Railroad (P-44-000377) from the east side of State Park Drive south of State Route 1, crosses State Route 1 via a railroad bridge at post mile 10.30, arcs through downtown Aptos, crosses another railroad bridge at post mile 9.85 along State Route 1, and terminates just south of Rio Del Mar Boulevard near the west end of Seascape Golf Club. The line is elevated by concrete footings over Aptos and Trout creeks.

Far Western archaeologists revisited one multi-component site, and seven historic-era sites. Surface artifacts were identified in the rail trail corridor, and two new isolated finds were noted but not recorded. No new archaeological sites were encountered.

A survey of the recorded built environment cultural resources in the architectural Area of Potential Effects was conducted on February 9, 2021. The survey was conducted according to guidelines established through consultation with Caltrans' reviewers. Each parcel was observed from the public right-of-way and all visible façades were photographed. Subsequently, photographs were carefully inspected to make recommendations regarding potential architectural significance and historic integrity.

Test Excavations

Because project construction would require ground disturbance within previously recorded site boundaries and areas of elevated buried site sensitivity, an Extended Phase 1 and Phase 2 testing proposal was prepared and approved by Caltrans. This proposal called for a series of hand excavations in previously untested areas of sites CA-SCR-2/H and CA-SCR-222/H where project ground disturbance is planned. Portions of both CA-SCR-2/H and CA-SCR-222/H have been previously evaluated and found to be non-significant.

Test excavations were carried out in February and March 2021. At site CA-SCR-2/H, five shovel test units and two control units were excavated for a total of 4.0 cubic meters. Similarly, six shovel test units and two control units were excavated at site CA-SCR-222/H for a total of 3.9 cubic meters. At both

sites intact soils containing a very sparse precontact assemblage of flaked and ground stone tools were sampled; however, dietary remains were virtually absent, and no features or human remains were identified. Reliable temporal indicators were also lacking at both sites. In addition, historic-era remains consisted of a sparse assemblage with a relatively restricted range of artifact types.

Hand-augering was also conducted in two areas of high sensitivity for buried sites: the rail trail corridor within Aptos and a small portion of the State Route 1 corridor east of Aptos. Nineteen hand augers were excavated at roughly 25-meter intervals across these areas to depths ranging from 1.5 to 3.0 meters below surface. No archaeological materials were identified despite screening select soils, and no buried soils were identified indicating a low potential for deeply buried sites within the depths sampled. Based on these findings no further archaeological identification or evaluation was recommended for the project as currently defined.

Cultural Resources Identified in the Study Area

Archaeological Resources

CA-SCR-2/H

This resource was originally recorded as a historic-era occupation containing animal bone, ceramics, and bottle glass but in subsequent recordings it is described as primarily a precontact habitation site containing shell midden and flaked and ground stone tools along both sides of State Route 1. Test excavations performed in 2009 recommended that neither the precontact nor historic-era components of the site were eligible for listing on the National Register of Historic Places based on minimal findings. Test excavations conducted for this project confirmed the previous determination and therefore this site was recommended as not eligible for listing on the National Register of Historic Places. The current study also determined that the tested portion of the site within the Area of Potential Effects does not contribute to its eligibility for listing in the National Register of Historic Places or California Register of Historical Resources. However, the entirety of the site was not tested. Therefore, CA-SCR-2/H is considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project. An Environmentally Sensitive Area will be established to ensure that resource CA-SCR-2/H is not affected during project implementation.

CA-SCR-222/H

This resource is recorded as a precontact habitation site containing midden with stone, bone, and shell visible on the surface. The site has been historically affected by development in the area. At the time of its original recording, the site was bisected by two dirt roads and railroad tracks, and a concrete foundation was present in the northeast portion of the site.

According to the site record, the site may be the location of the ethnographic village of Aptos, reportedly the last occupied precontact village in Santa Cruz. Test excavations conducted for this project indicated very sparse precontact assemblage of flaked and ground stone tools with a limited range of artifact types. Regardless, the entirety of the site was not tested. Therefore, CA-SCR-222/H is considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project. An Environmentally Sensitive Area will be established to ensure that resource CA-SCR-222/H is not affected during project implementation.

CA-SCR-353/H

This resource was originally recorded as a sparse scatter of shell, chert debitage, and historic-era debris along the north side of State Route 1 east of Aptos. Two projectile points and a handstone were also recorded. Historic-era material consisted of bottle and window glass and ceramic serveware. Test excavations performed in 2009 for a Caltrans guardrail project resulted in no precontact artifacts subsurface, and subsurface historic-era artifacts were determined to have been redeposited. This site was evaluated in 2010 as part of the Santa Cruz Guardrail project (Caltrans 2010). Given the level of disturbance and lack of subsurface deposit, the site was recommended not eligible for listing on the National Register of Historic Places and California Register of Historical Resources. In a letter dated July 27, 2010, the SHPO concurred with the eligibility determination that CA-SCR-353/H is not eligible for inclusion in the National Register due to its lack of integrity.

Architectural Resources

Seventeen built environment resources have been determined to be within the Area of Potential Effect for this project. Of the seventeen resources in the Area of Potential Effect, seven have been previously evaluated for eligibility in the National Register of Historic Places and/or the California Register of Historical Resources. Of those seven previously evaluated resources, one, The Bay View Hotel, has been previously determined eligible for listing on both registers. The six other resources have been previously determined ineligible for listing in one or both registers. In addition to the seven previously evaluated resources, there are ten unevaluated resources which were evaluated in support of the current project. Of the ten resources evaluated for this project, one resource, the Southern Pacific Rail Road (Santa Cruz Branch Line) has been determined eligible for listing both registers. The other nine unevaluated properties were determined as not eligible for the National Register of Historic Places and/or the California Register of Historical Resources. Therefore, two historic built environment resources are within the Area of Potential Effect for this project including the Bay View Hotel, which is listed in the National Register at the local level of significance under Criterion A and Criterion C, and the Southern Pacific Railroad (Santa Cruz Branch Line), which has been recommended as eligible for the National Register of

Historic Places. See tables below for a reference of all seventeen resources within the area of potential effects.

Determinations of Eligibility

The following tables detail the eligibility determinations for properties in the Area of Potential Effects.

Table 2-36. Property Listed in the National Register of Historic Places

Name	Location
Bay View Hotel	8041 Soquel Drive, Aptos

The following property is a stretch of a historic-era railroad that is partially located within the Area of Potential Effects. The full extent of the resource has been surveyed for this project, and it is recommended as eligible for the National Register of Historic Places and is considered a historical resource for the purposes of CEQA.

Table 2-37. Property Recommended Eligible

Name	Location
Southern Pacific Railroad Segment	Southern Pacific Railroad through Aptos

The following properties are considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project.

Table 2-38. Properties Recommended Eligible for Purposes of This Project

Name	Location
CA-SCR-2/H	Confidential
CA-SCR-222/H	Confidential

The following properties have been previously determined ineligible for the National Register of Historic Places.

Table 2-39. Properties Previously Determined Not Eligible

Name	Location
Aptos Wharf Rd./ Judge Rice House	7992 Soquel Drive, Aptos
Jose Arano House	7996 Soquel Drive, Aptos
Southern Pacific Railroad Bridge 36-0012	Southern Pacific Railroad over Aptos Creek, Aptos

Name	Location
Southern Pacific Railroad Bridge 36-0011	State Route 1 over Aptos Creek, Aptos
Southern Pacific Railroad Bridge 36-0003	Southern Pacific Railroad over State Route 1, Aptos
Aptos Village Historic District	Aptos

The following newly evaluated properties listed below have been determined as not eligible for the National Register of Historic Places or California Register of Historical Resources as a result of the study.

Table 2-40. Newly Evaluated Properties Determined Not Eligible

Name	Location
7945 Soquel Drive	7945 Soquel Drive, Aptos
7957 Soquel Drive	7957 Soquel Drive, Aptos
7963-7969 Soquel Drive	7963-7969 Soquel Drive, Aptos
7979 Soquel Drive	7979 Soquel Drive, Aptos
Aptos Village Park	100 Aptos Creek Road
Toney Building	403 Trout Gulch Road, Aptos
9006 Soquel Drive	9006 Soquel Drive
9016 Soquel Drive	9016 Soquel Drive
9030 Soquel Drive	9030 Soquel Drive

Environmental Consequences

Build Alternative

This section is revised in the final environmental document to remove two parcels that are owned in fee by Santa Cruz Regional Transportation Commission. On November 29, 2023, the State Historic Preservation Officer was contacted with a request for concurrence with the Finding of No Adverse Effect with a revised Section 106 PA Stipulation from VIII.C.3 to Stipulation VIII.C.4 . In a letter dated December 14, 2023, the State Historic Preservation Officer concurred with the project’s effects. The finding for the project as a whole is “no adverse effect without standard conditions.”

Identified Cultural Resources

Bay View Hotel

The Bay View Hotel at 8041 Soquel Drive, is listed on the National Register of Historic Places at the local level of significance under Criterion A and Criterion C. The property is significant under Criterion A for its association with the establishment of the railroad and Aptos Village in the 1870s and subsequent commercial and residential expansion as well as development of the local tourism industry. It is significant under Criterion C as an excellent example of Second Empire architecture. Second Empire is an architectural

style that originally flourished during the period of the "Second Empire" in France (1852-1870) - buildings are usually in a simple box form, square or rectangular and highly symmetrical. Its period of significance is 1878–1919. The hotel is also a historical resource for the purposes of CEQA.

Its boundaries are the assessor's parcel boundaries. Contributing elements include massing of the building; mansard roof with dormers; cornice with dentil molding, paneled frieze, and scrolled brackets with ornamental pendants; and orderly fenestration pattern with tall openings fitted with two-over-two wood sash and featuring decorative surrounds with pedimented hoods and scrolled brackets. Wooden shiplap siding with decorative quoins; wraparound porch with chamfered posts, ornamental brackets, and decorative scrollwork balustrades at the first and second floor; original paneled partially glazed wood door with transom; and mature magnolia tree in front of main façade are additional contributing elements of the historical resource. Noncontributing elements include glazing/enclosure on the porch (added outside the period of significance), metal railing at the mansard level, exterior stairways at the rear of the building, a single-story rear addition, and utility sheds and other non-historic-era structures on the parcel. Setback and siding on the parcel are not contributing elements; the building was moved from its original location in 1946 (outside the period of significance).

Parcels 041-011-35 and 041-011-55 are owned in fee by Santa Cruz Regional Transportation Commission. The project would not directly or indirectly effect any character defining features of the historic property. Therefore the finding for the Bay View Hotel is no adverse effect without standard conditions.

Southern Pacific Railroad (Santa Cruz Branch Line)

The Southern Pacific Railroad (Santa Cruz Branch Line), has been determined eligible for the National Register of Historic Places. The segment within the Area of Potential Effects appears to retain integrity to the period of significance (1876–1938) for the railroad. It was the first line to connect Santa Cruz with the important agricultural center Watsonville, and when completed in 1876 allowed Santa Cruz its first connection to the nationwide railroad network.

Its boundaries are the extent of the railroad right-of-way along its entire alignment. In addition to the railroad alignment and bridges within the right-of-way, three buildings contribute to the historic property as well. The depots at 411 Walker Street in Watsonville and 250 Monterey Avenue in Capitola as well as the Freight Depot at Depot Park in Santa Cruz are contributing elements of the historic property, although they are not within the current right-of-way.

Its alignment within the Area of Potential Effects is its most important contributing element; this portion of the alignment was chosen to pass near

properties owned by the founder of the Santa Cruz Branch Line and the unusual layout of Aptos was determined by the shape of the railroad alignment. Elements including ballast, steel rails, earthen embankments, and wood railroad ties can also be considered contributing elements because they allow it to continue conveying its historic identity as a railroad, however those features have been determined to be less than significant than other contributing elements such as the alignment, and contributing structures such as bridges and stations.

The effects on the Southern Pacific Railroad (Santa Cruz Branch Line) are currently being studied and Caltrans will work with the State Historic Preservation Officer to analyze effects and make findings. Therefore the finding for the Southern Pacific Railroad is no adverse effect without standard conditions.

Ultimate Trail Configuration

The ultimate trail configuration includes construction of a paved bicycle and pedestrian shared use trail alongside the existing railroad track alignment. Fencing would be installed to separate trail users and the railroad. The project would affect the Southern Pacific Railroad (Santa Cruz Branch Line), but the alignment and all of other most significant contributing elements would remain intact.

Optional First Phase

All or a portion of the trail would be constructed in approximately the same location as the existing railroad tracks by removal of the rails and ties from just south of Rio Del Mar Boulevard at the southern terminus with Sumner Avenue to the northern terminus at State Park Drive (Figure 1-5 in Chapter 1, *Proposed Project*).

As described above, the railroad alignment is its most important contributing element; this portion of the alignment was chosen to pass near properties owned by the founder of the Santa Cruz Branch Line and the unusual layout of Aptos was determined by the shape of the railroad alignment. The project would remove some of the contributing elements (i.e., rails and ties) but the alignment and all of the other most significant contributing elements would remain intact.

Removal of Optional First Phase

If all or a portion of the optional first phase of the trail is implemented, the trail along the existing railroad track alignment would need to be removed, a trail would be constructed adjacent to the tracks as described by the proposed ultimate trail project, and the railroad tracks re-installed in their approximate existing location.

As described above, the railroad alignment is its most important contributing element. The project would not affect the railroad alignment. Replacing the railroad tracks in kind would help to convey the overall appearance of the railroad, to the extent that the original railroad tracks would convey.

Section 4(f) of the Department of Transportation Act of 1966 provides protection for historic properties. However, per 12 CFR 774.13 (a), there are exceptions to the requirement for Section 4(f) approval. For existing transportation facilities such as the Santa Cruz Branch Line, Section 4(f) approval is required only when a historic bridge, highway, railroad, or other transportation facility is adversely affected by the proposed project; e.g. the historic integrity (for which the facility was determined eligible for the National Register of Historic places) is adversely affected by the proposed project (See 23 CFR 774.13(a)). Based on the analysis presented in this environmental document, the Santa Cruz Branch Line would continue to remain eligible for the National Register of Historic Places (concurred by the State Historic Preservation Officer on December 14, 2023). Therefore, Section 4(f) approval is not required.

Archaeological Resources: CA-SCR-2/H and CA-SCR-222/H

The project area is sensitive for buried archaeological deposits. Although test excavations at P-44-000010 (CA-SCR-2/H) and P-44-000224 (CA-SCR-222/H) uncovered sparse assemblages, the buried site sensitivity assessment determined the project ranges from lowest to highest sensitivity for encountering buried precontact deposits. The highest potential exists near the Aptos Village segment of the rail trail alignment, adjacent to CA-SCR-222/H and pockets of the State Route 1 corridor near Valencia Creek. Areas that may be subject to deep and extensive subsurface impacts within these areas have potential to affect buried resources. Although test excavations of CA-SCR-2/H and CA-SCR-222/H within the project Area of Potential Effects have been determined to not contain data bearing deposits, the entirety of both sites were not tested. Therefore, CA-SCR-2/H and CA-SCR-222/H are considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project. The APE has been extended to include both sites and an Environmentally Sensitive Area will be established to ensure that these resources are not affected during project implementation. Therefore, the finding for archaeological resources is no adverse effect without standard conditions.

Previously Unknown Archaeological Resources

The records search and extended phase I and 2 testing results indicate the project area is sensitive for buried archaeological deposits. As a result, it is possible that previously unknown archaeological resources could be uncovered during ground-disturbing construction activities for the proposed project. Implementation of Avoidance and Minimization Measures CUL-1,

CUL-2, CUL-3, and CUL-4 would reduce the potential for adverse effects on previously unknown archaeological resources.

No-Build Alternative

The No-Build Alternative would not result in project-related effects on either known or as-yet-unidentified archaeological resources because there would be no project-related excavation within archaeologically sensitive areas. Similarly, the No-Build Alternative would not affect architectural/built-environment cultural resources.

Avoidance, Minimization, and/or Mitigation Measures

Standard Measure CR-1 and the following avoidance and minimization measures would be incorporated into the project to avoid and minimize impacts to cultural resources.

AMM CUL-1: Conduct Mandatory Cultural Resources Awareness Training for Construction Personnel

Before any ground-disturbing work occurs in the project area, a qualified archaeologist will be retained to conduct mandatory contractor/worker cultural resources awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors), to brief them on the need to avoid effects on cultural resources adjacent to and within construction areas and the penalties for not complying with applicable state and federal laws and permit requirements.

AMM CUL-2: Implement Avoidance and Notification Procedures for Cultural Resources Discovered during Construction

The project proponents will inform its contractor(s) of the possibility of subsurface archaeological deposits within the project area by including the following directive in contract documents:

“If prehistoric or historical archaeological deposits are discovered during project activities, all work within 100 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations regarding the treatment of the discovery. Project personnel shall not collect or move any archaeological materials or human remains and associated materials. Archaeological resources can include flaked-stone tools (e.g., projectile points, knives, choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, faunal bones, and cultural materials); and stone-milling equipment (e.g., mortars, pestles, handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse.”

If archaeological deposits are identified during project subsurface construction, all ground-disturbing activities within 100 feet will be redirected and a qualified archaeologist contacted to assess the situation and consult with agencies as appropriate. The archaeologist will first determine whether such deposits are historical resources as defined in 14 California Code of Regulations 15064.5(a) and as required of the lead agency at 14 California Code of Regulations 15064.5(c)(1). If these deposits do not qualify as historical resources, a determination will be made whether they qualify as unique archaeological resources, pursuant to 14 California Code of Regulations 15064.5(c)(3). If the deposit qualifies as a historical resource or a unique archaeological resource, it will need to be avoided by adverse effects, or such effects must be mitigated. Mitigation may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits, recording the resource, preparation of a report of findings, and accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach also may be appropriate. Upon completion of the assessment, the archaeologist will prepare a report documenting the methods and results and provide recommendations for the treatment of the archaeological materials discovered. The report will be submitted to the project proponents and the California Historical Resources Information System.

AMM CUL-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities

If human remains are encountered, the remains will be treated in accordance with California Health and Safety Code 7050.5. The project proponents will inform their contractor(s) of the cultural sensitivity of the project area for human remains by including the following directive in contract documents:

“If human remains are encountered during project activities, work within 100 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.”

Upon completion of the assessment, the archaeologist will prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the Most Likely Descendant. The report will be submitted to the project proponents and the California Historical Resources Information System.

AMM CUL-4: Establish an Environmental Sensitive Area for Resources CA-SCR-2/H and CA-SCR-222/H

An Environmentally Sensitive Area will be established to ensure that archaeological resources CA-SCR-2/H and CA-SCR-222/H are not affected during project implementation. Prior to construction, the construction contractor will install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the area of direct impact located within the Area of Potential Effects to restrict access to the portions of CA-SCR-2/H and CA-SCR-222/H outside the project limits. Prior to installation of the Environmentally Sensitive Area fencing, an Environmentally Sensitive Area Action Plan will be prepared.

References

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2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

Affected Environment

The information in this section is from the Floodplain Evaluation Report (September 2022a) (WRECO) and the Water Quality Assessment Report prepared for the project in September 2022b (WRECO).

The Caltrans Water Quality Planning Tool (2022) identifies the project within the Aptos-Soquel hydrologic subarea, the Santa Cruz hydrologic area, and the Big Basin hydrologic unit. The northern portion of the Coastal Rail Trail Segment 12 of the project is in the Soquel Watershed and drains directly to the Pacific Ocean through a system of stormwater drains. Receiving waters for the project are Aptos Creek, Valencia Creek, Valencia Lagoon, and the Pacific Ocean; Aptos Creek and Valencia Creek are creeks within designated Federal Emergency Management Area floodplains and located within the project’s footprint.

The project limits are within Aptos Creek, Soquel Creek, and San Andreas watersheds.

The Aptos Creek watershed lies within the southern portion of the county of Santa Cruz. The Aptos Creek watershed originates in the San Rosalia Mountains. The watershed includes portions of the Forest of Nisene Marks State Park. Major tributaries that contribute to Aptos Creek are: Mangels Gulch, with a confluence with Aptos Creek approximately 0.5 mile upstream of the State Route 1 bridge crossing; Valencia Creek, which originates along the northeastern boundary of the Aptos Creek watershed and flows in a north to south direction.

Trout Creek Gulch is a major tributary to Valencia Creek, and their confluence is approximately 0.3 mile upstream of the confluence of Valencia Creek with Aptos Creek. Aptos Creek crosses State Route 1 at a five-span bridge, and Valencia Creek crosses State Route 1 at an arch culvert which crosses under State Route 1 and outfalls into Aptos Creek. An overflow channel just upstream (north) of the State Route 1 crossing allows the Valencia Creek flows not conveyed through the culvert to overflow into Aptos Creek upstream of the State Route 1 bridge crossing over Aptos Creek. Downstream (south) Aptos Creek continues to flow south to the Pacific Ocean.

The northern limits of the study area for State Route 1 and the western limit of the study area for Coastal Rail Trail Segment 12 are in the Soquel Creek watershed and San Andreas watershed. The stormwater drains in the Soquel Creek watershed drain through underground pipes to the Pacific Ocean. The Soquel Creek watershed is one of the major watersheds in Santa Cruz County.

A small portion of the southwestern portion of the project area is within the San Andreas watershed. The San Andreas watershed is bordered on the north and east by the Pajaro River watershed and on the west by the Aptos Creek watershed. The San Andreas watershed drains an area of approximately 15 square miles and is comprised of Bush Gulch and two unnamed streams. Land use is predominantly agriculture with some rural and urban residential areas.

Federal Emergency Management Area flood insurance rate maps in the project vicinity (06087C0356F, 06087C0357F, 06087C0378F, and 06087C0380F) were reviewed to obtain floodplain information. The project; however, is within the Federal Emergency Management Area Flood Insurance Rate Map Zone 06087C0357F (Figure 2-16). The Aptos Creek floodplain is designated as a special flood hazard area Zone AE. Zone AE represents areas subject to flooding by the 100-year flood event. A floodway has also been defined by Federal Emergency Management Area along this reach of Aptos Creek (Figure 2-17). Although the railroad structures would cross over Aptos Creek, the improvements would be outside the special flood hazard area. The Valencia Creek Federal Emergency Management Area floodplain is designated as shaded Zone X, which represents areas subject to flooding by storm events between the 100-year and 500-year floods. Most of the project site is in the unshaded Zone X regions. An area within unshaded Zone X is outside of Federal Emergency Management Area's special flood hazard areas and represent areas of minimal flood hazard. These areas are outside of the Federal Emergency Management Area base floodplain.

The project would not be a significant encroachment on the base floodplain. Therefore, alternatives to significant encroachments were not analyzed.

Environmental Consequences

Build Alternative

The potential risk associated with the Build Alternative would include but not be limited to: change in land use, change in impervious surface area, fill inside the floodplain, or change in the 100-year water surface elevation. Direct impacts on hydrological

resources generally occur during construction and operational activities within the floodplain. Project improvements for both the interim and ultimate trail configurations would not impact the base floodplain. For the interim condition, the project improvements would be isolated to the railroad bridge decks, which are located outside of the floodplain. For the ultimate condition, the grading, piers, and structures would also be located outside of the base floodplain. Therefore, the project would have the same potential for effects and, except where noted, different trail configurations are not discussed separately in this section.

Change in Land Use

The project proposes improvements along the existing State Route 1 roadway with minimal modifications to the roadway profile. The overall existing land use of the project watershed area would be maintained. The effect of the proposed project on water surface elevation and stream flow are anticipated to be negligible and there would be no significant floodplain encroachment.

Change in Impervious Surface Area

The project would result in a net increase of impervious area of 3.61 acres in Caltrans' right-of-way, 6.28 acres for the optional first phase trail in Santa Cruz County's right-of-way, and 6.51 acres for the ultimate trail configuration in Santa Cruz County's right-of-way. Section 2.2.2, *Water Quality*, provides additional information on changes in impervious area for the project. The Aptos Creek watershed area is approximately 12.2 square miles, and the Valencia Creek watershed area is approximately 12.1 square miles for a combined watershed area of 24.3 square miles at the project locations. Based on the net increase of impervious area that would drain to receiving waters within the project limits, substantial impacts on base floodplains are not anticipated.

Fill Inside the Floodplain

Grading associated with project improvements is proposed to be above the 1-year water surface elevation. The minimal fill in the floodplain would be the additional 4-foot by 4-foot square columns in the channel for the bridge widening. The additional fill is anticipated to be offset by grading the banks. Therefore, the minimal fill anticipated to be inside the floodplain will be offset by grading around the State Route 1 bridge.

Change in the 100-Year Water Surface Elevation

The proposed improvements would result in negligible changes in the water surface elevations at and upstream of the structures. There would be a localized increase in water surface elevation of 0.02 feet upstream of the proposed State Route 1 bridge at Aptos Creek during the 100-year storm event and an increase of 0.02 feet during the 100-year flows with sea level rise. Because the project is associated with a floodway at Aptos Creek, the project could potentially result in a change in the Base Flood Elevation. However, the local floodplain administrator should review the project and decide if a Conditional Letter of Map Revision or Letters of Map Revision would be required for the project. Overall, there would be little change in water surface elevation

upstream of State Route 1 and the 100-year water surface elevations would be below the roadway elevations of State Route 1.

Potential Encroachments

The Federal Highway Administration defines a significant encroachment as a highway encroachment, and any direct support of likely base floodplain development, that would involve one or more of the following construction or flood-related impacts: (1) significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route, (2) a significant risk, or (3) a significant adverse impact on the natural and beneficial floodplain values.

The results of the hydraulic modeling show the base flood would pass under the soffit of the proposed Aptos Creek bridge with freeboard (approximately 23 feet during the 100-year flood, and 19 feet during the 100-year flood with sea level rise). The proposed bridge would not be overtopped by the base flood and therefore, traffic interruptions are not anticipated to result from the base flood at Aptos Creek.

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. Potential short-term adverse effects during project construction on natural and beneficial floodplain values include: (1) loss of vegetation during construction activity; and (2) temporary disturbance to wildlife and aquatic habitat. Construction should be planned to avoid adverse effects on the natural and beneficial floodplain areas to the maximum extent practicable. The project design, as well as best management practices, standard measures, and avoidance, minimization and mitigation measures included for biological resources would reduce effects on floodplain areas.

As defined by the Federal Highway Administration, the support of incompatible base floodplain development would encourage, allow, serve, or otherwise facilitate incompatible base floodplain development, such as commercial development or urban growth. The project would not trigger incompatible floodplain development and be designed to have minimal work in the designated floodplains. The project would generally maintain local and regional access and would not create new access routes to developed or undeveloped lands.

As defined by the Federal Highway Administration, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. A longitudinal encroachment is "[a]n encroachment that is parallel to the direction of flow. Example: A highway that runs along the edge of a river is usually considered a longitudinal encroachment." The requirement for consideration of avoidance alternatives must be included in a location hydraulic study by including an evaluation and a discussion of the practicability of alternatives to any significant encroachment or any support of incompatible floodplain development.

The improvements along the upstream reach of Valencia Creek are considered to be longitudinal to the direction of the flow. However, the Federal Emergency Management

Area depicts the area at the upstream reach of Valencia Creek as a shaded Zone X area, which is not considered an Special Flood Hazard Area. In addition, the hydraulic model indicates that the improvements would not increase the 100-year water surface elevations. Therefore, the project would not cause a significant longitudinal encroachment.

Sea Level Rise Impacts

The project is not anticipated to be inundated by the estimated sea level rise with the 100-year storm and therefore, the project is not anticipated to have any impacts due to sea level rise. Sea level rise is further analyzed in Section 3.3, Climate Change.

No-Build Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or Bus-on-Shoulder features on State Route 1 within the project area, and Coastal Rail Trail Segment 12 would not be constructed. The existing transportation facilities within the project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on State Route 1 and other segments of the Coastal Rail Trail. The No-Build Alternative would not change hydrology in the project area because no construction would take place.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures would be required. The list of applicable standard measures is shown in Chapter 1, Project Description.

References

Caltrans. 2017. Construction Site Best Management Practices Manual. Sacramento. May.

WRECO. 2022a. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements Freedom Blvd to State Park Dr. and Coastal Rail Trail Segment 12 Project Santa Cruz County, California 05-SCR-01, 8.1/10.7; EA 05-0C7340; Project ID 0520000083. Floodplain Evaluation Report. September.

WRECO. 2022b. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project. Final Water Quality Assessment Report. September.

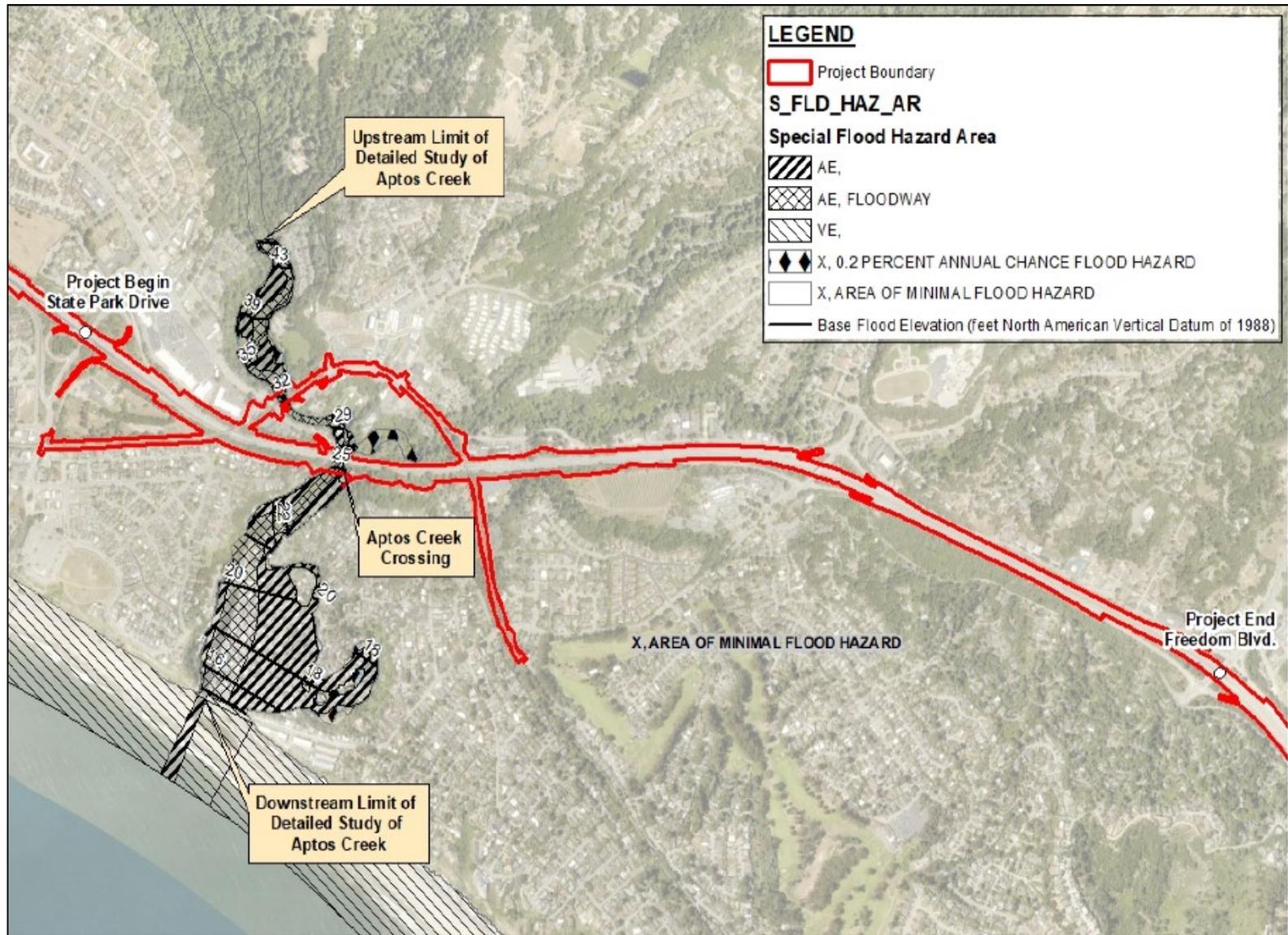


Figure 2-16. Federal Emergency Management Area Floodplain Map, Project Vicinity

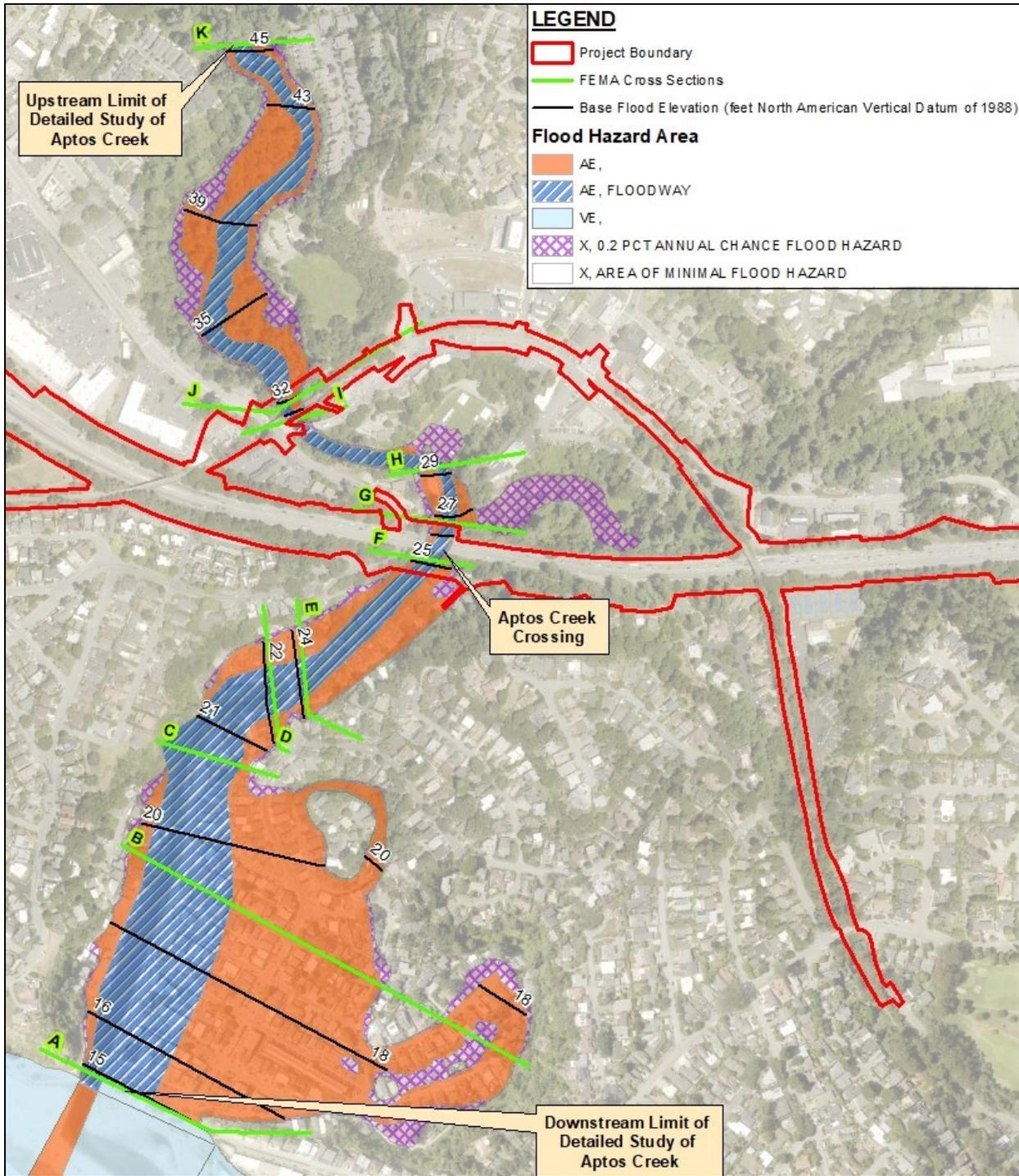


Figure 2-17. Federal Emergency Management Area Floodplain Map, Aptos Creek

2.2.2 Water Quality and Stormwater Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers.

The goal of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

U.S. Army Corps of Engineers issues two types of 404 permits: general and individual. There are two types of general permits: regional and nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of U.S. Army Corps of Engineer’s individual permits. There are two types of individual permits: standard permits and letters of permission. For individual permits, the U.S. Army Corps of

Engineers decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (Guidelines) (40 Code of Federal Regulations Part 230), and whether the permit approval is in the public interest. The Guidelines were developed by the Environmental Protection Agency in conjunction with U.S. Army Corps of Engineers, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 Code of Federal Regulations 320.4. A discussion of the LEDPA determination, if any, for the document is included in Section 2.3.2, *Wetlands and Other Waters*.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act (Porter-Cologne Act), enacted in 1969, provides the legal basis for water quality regulation within California. The Porter-Cologne Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface water and/or groundwater of the state. It predates the Clean Water Act and regulates discharges to waters of the state. Waters of the state is a broader category than waters of the U.S., including groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the Clean Water Act definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by waste discharge requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable Regional Water Quality Control Board Basin Plan. In California, Regional Water Quality Control Boards designate beneficial uses for all waterbody segments in their jurisdictions and then set criteria necessary to

protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the State Water Resources Control Board identifies waters failing to meet standards for specific pollutants. These waters are then state listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (National Pollutant Discharge Elimination System permits or waste discharge requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of stormwater discharges, including Municipal Separate Storm Sewer Systems. A *Municipal Separate Storm Sewer System* is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The State Water Resources Control Board has identified Caltrans as an owner/operator of a Municipal Separate Storm Sewer System under federal regulations. Caltrans’ Municipal Separate Storm Sewer System permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Resources Control Board or the Regional Water Quality Control Board issues National Pollutant Discharge Elimination System permits for 5 years, and permit requirements remain active until a new permit has been adopted.

The Caltrans Municipal Separate Storm Sewer System Permit, Order Number 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1,

2013), as amended by Order Number 2014-0006-EXEC (effective January 17, 2014), Order Number 2014-0077-DWQ (effective May 20, 2014) and Order Number 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below).
2. Caltrans must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges.
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices, to the maximum extent practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Storm Water Management Plan assigns responsibilities within Caltrans for stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices. The proposed project would be programmed to follow the guidelines and procedures outlined in the latest Storm Water Management Plan to address stormwater runoff.

The project would include rail trail and road alignment work within the unincorporated portion of Santa Cruz County. The County of Santa Cruz is a permittee under the statewide Phase 2 Small Municipal Separate Storm Sewer System permit (National Pollutant Discharge Elimination System Number CAS000004, State Water Resources Control Board Order Number 2013-0001-DWQ). The project would be subject to Post-Construction Stormwater Requirements issued by the Central Coast Regional Water Quality Control Board, which give additional project size-based requirements for site design, water quality treatment, runoff retention, and peak management. Additionally, the County of Santa Cruz has developed *Design Criteria Containing Standards for the Construction of Streets, Storm Drains, Sanitary Sewers, Water Systems, and Driveways within the Unincorporated Portion of Santa Cruz County* (County of Santa Cruz 2019).

Caltrans's Municipal Separate Storm Sewer System permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state and would apply to those portions of the project.

Road realignment work within the County of Santa Cruz's right-of-way would be subject to the requirements outlined in the Phase 2 Municipal Separate Storm Sewer System Permit.

The Santa Cruz County Design Criteria summarizes the requirements of the Phase 2 Small Municipal Separate Storm Sewer System Permit and the Central Coast Regional Water Quality Control Board's *Post-Construction Stormwater Management Requirements Development Projects in the Central Coast Region* (Regional Water Quality Control Board Post-Construction Stormwater Requirements) (Central Coast Regional Water Quality Control Board 2013). It also provides guidance for low-impact development design strategies and specific Best Management Practice selection criteria. The Design Criteria document provides technical requirements for project designs throughout Santa Cruz County that include permanent stormwater treatment best management practices. Placement of stormwater treatment best management practices within unincorporated Santa Cruz County's right-of-way would comply with the Santa Cruz County Design Criteria.

Per the Phase 2 Municipal Separate Storm Sewer System permit, sidewalks, bicycle lanes, and trails constructed with permeable surfaces, or sidewalks, bicycle lanes, and impervious trails built to direct stormwater to adjacent vegetated areas are excluded from the post-construction stormwater treatment control and hydromodification management requirements of this permit. Because all of the Project's rail trail improvements within unincorporated Santa Cruz County's right-of-way fit the criteria of exclusion described above, these improvements would be exempt from implementing stormwater treatment and baseline hydromodification management.

Construction General Permit

Construction General Permit Order Number 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective July 17, 2012) regulates stormwater discharges from construction sites that result in a disturbed soil area of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop Stormwater Pollution Prevention

Plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring. For all projects subject to the permit, applicants are required to develop and implement an effective Stormwater Pollution Prevention Plan. In accordance with Caltrans' Storm Water Management Plan and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with disturbed soil area less than 1 acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to waters of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before U.S. Army Corps of Engineers issues a 404 permit.

In some cases, the Regional Water Quality Control Board may have specific concerns with discharges associated with a project. As a result, the Regional Water Quality Control Board may issue a set of requirements known as waste discharge requirements under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. Waste discharge requirements can be issued to address both permanent and temporary discharges of a project.

Affected Environment

The information in this section is from the Water Quality Assessment Report prepared for the project in September 2022.

Surface Waters

The project's receiving waters are Aptos Creek and Valencia Creek, Valencia Lagoon, and the Pacific Ocean. The northern portion of Coastal Rail Trail Segment 12 is in the Soquel Watershed and drains directly to the Pacific Ocean through a system of stormwater drains. Valencia Creek is a tributary to Aptos Creek, and Aptos Creek drains directly to the Pacific Ocean.

Surface Water Quality Objectives and Beneficial Uses

According to the Water Quality Control Plan for the Central Coast Region (Basin Plan) (Central Coast Regional Water Quality Control Board 2019), the overall goals of water quality regulation are to “show how the quality of surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible.” The Regional Water Quality Control Board establishes and enforces waste discharge requirements for point and non-point sources of pollutants at levels necessary to meet numeric and narrative water quality objectives. Water quality objectives are numeric and narrative objectives used to define the appropriate levels of environmental quality and to manage activities that can affect aquatic environments. The Basin Plan lists the following water quality objectives for surface waters: color, tastes and odors, floating material, suspended material, settleable material, oil and grease, bio-stimulatory substances, sediment, turbidity, pH, dissolved oxygen, temperature, toxicity, pesticides, chemical constituents, other organics, and radioactivity.

The Basin Plan lists beneficial uses for Aptos Creek, Valencia Creek, and Valencia Lagoon, and that any surface waterbodies within the region that do not have beneficial uses designated for them are assigned the following designations: municipal and domestic water supply and protection of both recreation and aquatic life. The beneficial uses for Aptos Creek include the following: municipal and domestic supply, agricultural supply, industrial process supply, groundwater recharge, water contact recreation, non-water contact recreation, wildlife habitat, cold freshwater habitat, fish migration, fish spawning, preservation of biological habitats of special significance, estuarine habitat, freshwater replenishment, and commercial and sports fishing. The beneficial uses for Valencia Creek are the same except it does not include agricultural supply, industrial process supply, groundwater recharge, fish spawning, or freshwater replenishment. Valencia Lagoon beneficial uses are the same as Valencia Creek except it does not include municipal and domestic supply, cold freshwater habitat, or estuarine habitat; however, it does include warm freshwater habitat, freshwater replenishment, and rare, threatened, or endangered species. Each of the project’s receiving waterbodies discharge to the Pacific Ocean, which is approximately 0.5 mile south of the project site. The Pacific Ocean, as stated in the State Water Resources Control Board’s California Ocean Plan, has the following beneficial uses: industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation: commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish migration; fish spawning; and shellfish harvesting.

Areas of Special Biological Significance are defined in the California Ocean Plan as areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. There are six designated Areas of Special Biological Significance within the Central Coast

Regional Water Quality Control Board’s jurisdiction. However, none of these lie within the proposed project limits.

Waterbody segments that fail to meet standards for specific pollutants are included in a statewide list in accordance with Clean Water Act Section 303(d). If a Regional Water Quality Control Board determines that waters are impaired for one or more constituents, the Clean Water Act requires the establishment of Total Maximum Daily Loads to specify allowable pollutant loads from all sources for a given watershed. Tables 2-41 through 2-43 list the water quality impairments and Total Maximum Daily Loads for Aptos Creek, Valencia Creek, and the Pacific Ocean at Rio Del Mar.

Table 2-41. Clean Water Act Section 303(d)-Listed Pollutants, Aptos Creek

Pollutant	Potential Source	Total Maximum Daily Load Completion Date (Estimated)
Indicator Bacteria	Collection System Failure, Natural Sources, Urban Runoff/Storm Sewers, Other Urban Runoff	Environmental Protection Agency Approval Date: January 20, 2011
Sedimentation/ Siltation	Source Unknown	2027

Source: State Water Resources Control Board 2021

Table 2-42. Clean Water Act Section 303(d)-Listed Pollutants, Valencia Creek

Pollutant	Potential Source	Total Maximum Daily Load Completion Date (Estimated)
Escherichia coli	Source Unknown	2027
Fecal Coliform	Collection System Failure, Domestic Animals/Livestock, Natural Sources, Urban Runoff/Storm Sewers	Environmental Protection Agency Approval Date: January 20, 2011
Sedimentation/ Siltation	Source Unknown	2027

Source: State Water Resources Control Board 2021

Table 2-43. Clean Water Act Section 303(d)-Listed Pollutants, Ocean at Rio Del Mar (Santa Cruz County), Aptos Creek Mouth

Pollutant	Potential Source	Total Maximum Daily Load Completion Date (Estimated)
Total Coliform	Source Unknown	2027

Source: State Water Resources Control Board 2021

Municipal Supply

There are no drinking water reservoirs or recharge facilities near the project area. However, the Basin Plan does identify Aptos Creek and its tributaries, Valencia Creek and Trout Gulch Creek, as having beneficial use of municipal and domestic supply. Part of the project traverses through the Soquel Creek Water District and the Central Water District, which is 100% groundwater-sourced. The Santa Cruz Mid-County Groundwater Basin is currently overdrafted, and there is a *Groundwater Sustainability Plan* developed for the Santa Cruz Mid-County Groundwater Basin (Santa Cruz Mid-County Groundwater Agency 2019).

Groundwater

The project area is in the Santa Cruz Mid-County Groundwater Basin, as defined by California Department of Water Resources Bulletin 118. The Santa Cruz Mid-County Groundwater Basin is located near the towns of Aptos, Capitola, and Soquel, extending inland from the Pacific Ocean in Santa Cruz County. The northeastern boundary generally follows the northwest trending Zayante Fault. The eastern boundary is marked by the Central Water District and Pajaro Valley Water Management Agency. The southern boundary follows the Pacific Ocean up to the Santa Cruz Small Craft Harbor. The western boundary follows the watershed boundary between Carbonera Creek and Branciforte Creek up through Blackburn Gulch.

The water-bearing sediments consist of the Pliocene Purisima Formation, which is overlain by Quaternary terrace deposits, and the Pleistocene Aromas Red Sands Formation. The Purisima and Quaternary terrace deposit have been locally incised by streams filled with Quaternary alluvium. The Purisima Formation is exposed along Monterey Bay where it is a cliff-forming unit. The Aromas Red Sands Formation extends into the Pajaro Valley Basin. It appears the basin is supplied mostly from the Quaternary alluvium and terrace deposits. Groundwater cannot be the only viable water source for the surrounding areas due to sustainability and reliability issues of the local aquifers.

Based on the *Preliminary Geotechnical Design Report* (Parikh Consultants, Inc. 2021) prepared for the project, groundwater level is anticipated to vary with the passage of time due to seasonal groundwater fluctuation, surface and subsurface flows into nearby water course, ground surface runoff, and other environmental factors that may not be present at the time of previous field explorations. Information obtained from the State Water Resources Control Board's GeoTracker website, for sites within proximity to the project limit, indicated depth to groundwater ranges from 16 to 26.5 feet below ground surface, and groundwater flow direction is to the south-southwest.

The Basin Plan has water quality objectives listed for all groundwaters of the Central Coast Basin. Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. In

addition, the State Water Resources Control Board will establish basin- or site-specific groundwater objectives as necessary. At a minimum, all groundwaters will not contain concentrations of taste- or odor-producing substances or radionuclides. Groundwaters designated with the beneficial use of municipal and domestic supply will not contain concentrations of organic chemicals, inorganic chemicals, or radionuclides. Groundwaters designated with the beneficial use of agriculture supply will not contain concentrations of chemical constituents.

The Basin Plan does not list beneficial uses for specific groundwater basins. However, it does state that “Groundwater throughout the Central Coastal Basin, except for that found in the Carrizo Plain Groundwater Basin, is suitable for agricultural water supply, municipal and domestic water supply, and industrial use (Central Coast Regional Water Quality Control Board 2019).”

Environmental Consequences

Build Alternative

Because the project would disturb more than 1 acre of land, a construction stormwater general permit would be required for the build alternative. The project would have the same potential for effects and, except where noted, different trail configurations are not discussed separately in this section.

Construction

During construction, potentially sediment-laden flow can result from runoff over disturbed soil areas that enter storm drainage facilities or directly discharge into the receiving water bodies, increasing the turbidity, decreasing the clarity, and potentially affecting the beneficial uses of the receiving waterbodies. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, unstabilized slopes and construction staging areas, and improperly maintained or cleaned construction equipment. Earth moving and other construction activities could cause minor erosion and runoff of topsoil into the drainage systems along the project limits during construction, which could temporarily affect water quality in local waterways.

Also, during construction, the project would have the potential for water quality impacts due to grading and excavation activities, which can cause increased erosion. Stormwater runoff from the project site may transport pollutants to nearby receiving waters and storm drains if Best Management Practices are not properly implemented. Generally, as the disturbed soil areas increase, the potential for temporary water quality impacts also increases. The project would have an estimated 17.06 acres disturbed soil area in Caltrans’ right-of-way and 7.12 acres of disturbed soil area in Santa Cruz County’s right-of-way. The project has some potential for short-term water quality impacts during construction.

Temporary water quality impacts can result from sediment discharge from the disturbed soil areas and construction near water resources or drainage facilities that discharge to waterbodies. Permanent impacts on water quality result from the addition of impervious area; this additional impervious area prevents runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. The estimates for disturbed soil area, added impervious area, and reworked impervious area for the first phase and ultimate trail configurations are listed in Table 2-44. The disturbed soil area and impervious area values will be further refined during the design phase once the limits of grading, construction staging locations, off-ramp geometry, and other areas of improvement have been further developed.

Permanent impacts from runoff from the increased impervious surface area could increase pollutants to the receiving waterbodies. In compliance with the Caltrans and Phase 2 Municipal Separate Storm Sewer System permits, the project is required to construct permanent Best Management Practice design features that reduce these potential impacts. Erosion control measures such as hydroseeding and erosion control blankets will be applied on all disturbed soil areas to minimize post-construction erosion. Reducing pervious areas could also reduce the amount of rainfall that is able to percolate into the water table.

The project will also consider post-construction stormwater treatment best management practices that are designed to infiltrate, recharge, or store stormwater. The project would result in net new impervious surface areas of 6.28 acres under the interim trail option and 6.51 acres under the ultimate trail configuration. Because the 1999 Caltrans Municipal Separate Storm Sewer System permit does not require projects to treat the replaced impervious surface within Caltrans' right-of-way, and the Phase 2 Small Municipal Separate Storm Sewer System Permit does not require projects to treat bicycle or pedestrian facilities, the project is required to treat (to the maximum extent possible) the post-construction treatment area of the new impervious surface area of 3.61 acres within Caltrans' right-of-way and the post-construction treatment area of added and replaced area of 0.23 acre within the County's right-of-way only. As a result, the project is required to infiltrate, or treat with flow through treatment best management practices, the stormwater runoff from 3.84 acres of impervious surfaces. The project would disturb a total of 24.65 acres of soil.

Table 2-44. Build Alternative Disturbed Soil Area and Impervious Surface Area

Impact	Caltrans Right-of-Way (Acres)	Santa Cruz County Right-of-Way (Acres) State Route 1	Santa Cruz County Right-of-Way (Acres) Interim Trail	Santa Cruz County Right-of-Way (Acres) Ultimate Trail	Total (Acres) Interim Trail	Total (Acres) Ultimate Trail
Disturbed Soil Area	17.06	0.47	7.12	7.12	24.65	24.65
Pre-Project Impervious Area	32.47	0.08	2.31	2.31	34.86	34.86
Post-Project Impervious Area	30.01	0.31	4.75	4.98	35.07	35.3
Net New Impervious Area	3.61	0.23	2.44	2.67	6.28	6.51
Replaced Impervious Surface	N/A	0	0	0	N/A	N/A
Total New Impervious Surface	3.61	0.23	2.44	2.67	6.28	6.51
Post Construction Treated Area	3.61	0.23	0	0	3.84	3.84

If fueling or maintenance of construction vehicles occurs within the project site during construction, there is a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface receiving waterbodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

The Construction General Permit, Caltrans, and Santa Cruz County standards require the project's contractor to implement a Stormwater Pollution Prevention Plan to comply with the conditions of the Construction General Permit. The Stormwater Pollution Prevention Plan would be submitted by the contractor and approved by Caltrans prior to the start of construction. The Stormwater Pollution Prevention Plan is intended to address construction-phase impacts, and must include, at a minimum, the following elements:

- Project Description—The project description includes maps and other information related to construction activities and potential sources of pollutants.

- **Minimum Construction Control Measures**—These measures may include limiting construction access routes, stabilization of areas denuded by construction, and using sediment controls and filtration.
- **Erosion and Sediment Control**—The Stormwater Pollution Prevention Plan is required to contain a description of soil stabilization practices, control measures to prevent an increase in sediment load in stormwater, controls to reduce tracking sediment onto roads, and controls to reduce wind erosion.
- **Non-Stormwater Management**—The Stormwater Pollution Prevention Plan includes provisions to reduce and control discharges other than stormwater.
- **Post-Construction Stormwater Management**—The Stormwater Pollution Prevention Plan includes a waste management section including equipment maintenance waste, used oil, batteries, etc. All waste must be disposed of as required by state and federal law.
- **Maintenance, Inspection, and Repair**— the Stormwater Pollution Prevention Plan requires an ongoing program to ensure that all controls are in place and operating as designed.
- **Monitoring**—This provision requires documented inspections of the control measures.
- **Reports**—The contractor would prepare an annual report on the construction project and submit the report on July 15 of each year, with the final annual report being submitted upon project completion. This report would be submitted to the State Water Resources Control Board on the Stormwater Multiple Application and Report Tracking System website.
- **Training**—The Stormwater Pollution Prevention Plan provides documentation of the training and qualifications of the designated Qualified Stormwater Pollution Prevention Plan Developer and Qualified Stormwater Pollution Prevention Plan Practitioner. Inspections, maintenance, and repair of construction site Best Management Practices must be done by trained personnel.
- **Construction Site Monitoring Program**—The Stormwater Pollution Prevention Plan includes a Construction Site Monitoring Program, which details the procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, pH, and bioassessment.

Water quality impacts that occur during construction can be avoided or minimized by implementing temporary construction site Best Management Practices. Typical construction site Best Management Practices that should be considered for this project include but are not limited to, stabilized construction access, stabilized construction roadway, tire wash, street cleaning, dust control, rolled erosion control products, hydraulic mulch, hydroseeding, soil binders, inlet and catch basin protection, fiber rolls,

temporary large sediment barriers, gravel berms, stockpile management, and spill prevention and control. Non-stormwater and waste/material management measures include implementing procedures for water conservation, concrete management, paving and grinding operations, material delivery and storage, stockpile management, sanitary/hazardous/solid/liquid waste, contaminated soils, and discharge.

The selected Best Management Practices are consistent with the practices required under the Construction General Permit and the Phase 2 Small Municipal Separate Storm Sewer System General Permit. The actual minimum temporary construction site Best Management Practices necessary for the project to comply with the Construction General Permit, Caltrans, and County standards will be determined during the design phase. Furthermore, the contractor would be required to detail actual in-field implementation of the Best Management Practices in the Stormwater Pollution Prevention Plan during construction. The contractor would also be required to amend the Stormwater Pollution Prevention Plan as necessary to match both field conditions and project phasing.

The project design includes the widening of the existing State Route 1 bridge over Aptos Creek and Spreckels Drive. This proposed widening would occur on the south side of State Route 1 and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. Temporary dewatering of the work zone would be required. Therefore, the project is likely to need to implement temporary clear water diversions and groundwater dewatering. Dewatering activities would comply with Caltrans' Standard Specifications.

A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a *California Hazardous Materials Incident Contingency Plan* (1991), which provides a program for response to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills.

Currents, Circulation, and Drainage Patterns

The project would result in a net new impervious area of 6.28 acres under the interim trail or a net new impervious area of 6.51 acres under the ultimate trail configuration that would not be infiltrated or dispersed over unpaved surfaces. The added impervious area created by the project may result in impacts on the existing hydrograph, including increases in low flow and peak flow velocity and volume to the receiving waterbodies. Portions of the project along State Route 1 within the local jurisdictions' right-of-way would be subject to the hydromodification management requirements included in the Central Coast Regional Water Quality Control Board Post Stormwater Requirements and the Santa Cruz County Design Criteria.

Suspended Particulates (Turbidity)

The project would create new impervious areas, which would increase the amount of runoff not infiltrated or dispersed over permeable surfaces. Although the added impervious area could result in an increase of sediment-laden flow directly discharging to receiving waterbodies, stormwater impacts would be minimized through the proper implementation of permanent stormwater treatment measures and design pollution prevention Best Management Practices. Permanent erosion control measures would be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization. These measures may include hydraulically applying a combination of hydroseed with native seed mix, hydro mulch, straw, tackifier, and compost to promote vegetation establishment, and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. For steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving could be considered to provide stabilization.

The following design pollution prevention Best Management Practices should be considered for incorporation into the project design:

- Conserve natural areas, including existing trees, stream buffer areas, vegetation, and soils.
- Minimize the impervious footprint of the project.
- Minimize disturbances of natural drainages.
- Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious area's soil conditions, slope, and other design factors.
- Implement landscape and soil-based Best Management Practices such as amended soils and vegetated strips and swales where feasible.
- Use climate-appropriate landscaping that minimize irrigation and runoff. This promotes surface infiltration and minimizes the use of pesticides and fertilizers.
- Design landscapes to comply with state, local, and Caltrans requirements.

The Project Initiation Document for this project was signed in 2002 and therefore, the project is grandfathered under the 1999 Caltrans Permit (Section E.2.d). This project is subject to the treatment threshold requirements contained within the 1999 Caltrans Permit. Per the 1999 Caltrans Permit, the project will treat the net new impervious to the maximum extent practicable. Caltrans has an approved list of treatment best management practices that have been studied and verified to remove targeted design constituents and provide general pollutant removal.

In addition, portions of the project under the Santa Cruz County's right-of-way are subject to the requirements under the Phase 2 Municipal Separate Storm Sewer System Permit. The project proposes to create 2.44 acres of impervious bicycle

and pedestrian facilities under the interim trail and 2.67 acres of impervious bicycle and pedestrian facilities under the ultimate trail configuration. Per the Phase 2 Municipal Separate Storm Sewer System permit, rail trail improvements within Santa Cruz County's right-of-way would be classified as bicycle and pedestrian facilities, which drain to vegetated areas and therefore, these areas would be exempt from implementing site design, source control, runoff reduction, stormwater treatment, and baseline hydromodification management. Also, the project proposes to create 0.23 acre of impervious surface where Moosehead Drive is realigned within the County's right-of-way. The realignment of Moosehead Drive within the County's right-of-way would be subject to the site design, source control, runoff reduction, stormwater treatment, and baseline hydromodification management requirements of the Phase 2 Municipal Separate Storm Sewer System permit.

Per the County's design criteria, the project would be required to treat 0.23 acre of impervious surface within the County's right-of-way. Because the project proposes to increase the impervious surface area by less than 50% of the pre-project impervious area, runoff from only the added and replaced impervious areas would be treated to the maximum extent practicable. The project would be designed to treat runoff using any of the following (in order of preference):

- Retention treatment systems
- Low-impact development treatment systems
- Biofiltration treatment systems
- Non-retention-based treatment systems

Oil, Grease, and Chemical Pollutants

Heavy metals associated with vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, roadway stormwater runoff has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The pollutants are dispersed from combustion products from fossil fuels, the wearing of brake pads and tires, and tree leaves that have been exposed through aerial deposition. The project is expected to ease traffic delay, leading to less deposition of particulates from exhaust and heavy metals from braking.

The project would implement treatment best management practices such as biofiltration swales/strips, bioretention areas, and trash capture devices to remove pollutants from stormwater runoff. Treatment best management practices would avoid or minimize impacts on water quality.

Erosion and Accretion Patterns

As seen in Table 2-43, the project would result in a combined net new impervious surface of 6.28 acres under the interim trail or 6.51 acres under

the ultimate trail within the Caltrans' and Santa Cruz County's rights-of-way. The project can be expected to increase the volume and velocity of the stormwater discharge, which is likely to affect the downstream waterways. Existing vegetation will be preserved to slow the stormwater flow to the receiving waterbodies.

The project is grandfathered under the 1999 Caltrans Municipal Separate Storm Sewer System permit and therefore the project is not required to implement hydromodification management measures within Caltrans' right-of-way. For non-exempt portions of the project within Santa Cruz County's right-of-way, the project would have to comply with the hydromodification management requirements included under the Central Coast Regional Water Quality Control Board post-construction stormwater requirements of the Phase 2 Municipal Separate Storm Sewer System permit. The project proposes to add or replace less than 15,000 square feet of non-exempt impervious areas within Santa Cruz County's right-of-way and therefore, the project would not be subject to hydromodification requirements.

Aquifer Recharge/Groundwater

This project would add impervious area and thereby reduce the available unpaved area that previously allowed runoff to infiltrate into the native soils. Aptos Creek is listed in the Basin Plan as having the groundwater recharge beneficial use (Central Coast Regional Water Quality Control Board, 2019). The reduction of runoff infiltrating through native soils has the potential to result in loss in volume or amount of water that may have previously recharged localized aquifers and thereby reduce regional groundwater volumes. The reduction in local aquifer and groundwater recharge also has the potential to affect the beneficial uses of groundwater basins. Because the project is anticipated to have to comply with Caltrans' Municipal Separate Storm Sewer System post-construction permit requirements, treatment best management practices from the Caltrans list of approved treatment best management practices that allow stormwater infiltration will be considered for the project.

Baseflow

The net new impervious for the project ranges between 6.28 acres (0.001 square mile) and 6.51 acres (0.010 square mile), depending on if the interim or ultimate trail option is chosen. The overall combined watersheds area for Soquel Creek, which drains approximately 41 square miles, and Aptos Creek, which drains approximately 25 square miles, is 66 square miles. This results in a maximum of 0.15% increase in the amount of runoff not infiltrated or dispersed over unpaved surfaces. As the amount of surface runoff infiltrating into groundwater would likely be affected, the amount of base flow to Soquel Creek and Aptos Creek would likely be affected. The portions of the project area along State Route 1 that are under the local jurisdictions' right-of-way

would be subject to the Central Coast Regional Water Quality Control Board and Santa Cruz County hydromodification management requirements.

Human Use Characteristics of the Aquatic Environment

The project is not expected to have long-term impacts on beneficial uses for surface waters or groundwater. However, the project may temporarily affect these beneficial uses during construction, as discussed above. Temporary impacts may result from road closures during construction that would limit or prohibit access to stretches of Aptos Creek and its tributaries. The project limits do not extend to the Pacific Ocean and therefore, access to the Pacific Ocean fisheries would not be affected. Potential impacts on water-related recreation would be avoided with standard construction site Best Management Practices, water quality monitoring, and housekeeping practices.

No-Build Alternative

The No-Build (No-Action) Alternative would not affect water quality in the project area because no construction would occur.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures would be required. The list of applicable standard measures is shown in Chapter 1, Project Description.

References

Parikh Consultants, Inc. 2021. Preliminary Geotechnical Design Report Santa Cruz County Regional Transportation Commission-State Route 1 Auxiliary Lanes and Bus-on-Shoulder (Freedom Boulevard to State Park Drive) County of Santa Cruz, California 05-SCR-1- R8.1/10.7 EA: 05-0C734. Prepared for Mark Thomas. August.

Santa Cruz Mid-County Groundwater Agency. 2019. Groundwater Sustainability Plan. Soquel, CA. November.

WRECO. 2022. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project. Final Water Quality Assessment Report. September.

2.2.3 Geology, Soils, Seismicity and Topography

Regulatory Setting

Federal Requirements

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using Caltrans’ Seismic Design Criteria. The Seismic Design Criteria provide the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Clean Water Act Section 402 General Permit for Construction and Other Land Disturbance Activities (Order No. 2009-009-DWQ)

The Clean Water Act is discussed in detail in Section 2.2.2, *Water Quality and Stormwater Runoff*. However, because Clean Water Act Section 402 is directly relevant to grading activities, additional information is provided herein. Section 402 of the Clean Water Act mandates that certain types of construction activity comply with the requirements of the U.S. Environmental Protection Agency’s National Pollutant Discharge Elimination System program. The U.S. Environmental Protection Agency has delegated to the State Water Resources Control Board the authority for the National Pollutant Discharge Elimination System program in California, where it is implemented by the state’s nine Regional Water Quality Control Boards.

Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the 2009 Construction General Permit (Order 2009-009-DWQ). Construction activity subject to the Construction General Permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. Construction General Permit applicants are required to prepare a Notice of Intent and a Stormwater Pollution Prevention Plan, and to implement and maintain Best Management Practices to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

Coverage under the Construction General Permit is obtained by submitting permit registration documents to the State Water Resources Control Board that include a risk-level assessment and a site-specific Stormwater Pollution Prevention Plan identifying an effective combination of erosion control, sediment control, and non-stormwater Best Management Practices. The Construction General Permit requires that the Stormwater Pollution Prevention Plan define a program of regular inspections of the Best Management Practices and, in some cases, sampling of water quality parameters.

Because the proposed project would result in disturbance of an area greater than 1 acre, the project applicant will need to obtain coverage under the National Pollutant Discharge Elimination System General Construction Activity Storm Water Permit and obtain a state National Pollutant Discharge Elimination System Stormwater Permit from the Central Coast Regional Water Quality Control Board.

State Requirements

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (California Public Resources Code 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce risks to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are sufficiently active and well defined. A fault is considered *sufficiently active* if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered *well defined* if its trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface (California Geological Survey 2018:72).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (Public Resources Code 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo

Act—the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards; and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. Geotechnical investigations conducted within seismic hazard zones must incorporate standards specified by CGS Special Publication 117a, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CGS 2008).

Local Requirements

County of Santa Cruz General Plan

The *Santa Cruz County 1994 General Plan* (County of Santa Cruz 1994:6-4) addresses seismic and geologic hazards as discussed below.

Objective 6.1 Seismic Hazards. To reduce the potential for loss of life, injury, and property damage resulting from earthquakes by: regulating the siting and design of development in seismic hazard areas; encouraging open space, agricultural or low-density land use in the fault zones; and increasing public information and awareness of seismic hazards.

Policy 6.1.1 Geologic Review for Development in Designated Fault Zones. Require a review of geologic hazards for all discretionary development projects, including the creation of new lots, in designated fault zones. Fault zones designated for review include the Butano, Sargent, Zayante, and Corralitos complexes, as well as the State designated Seismic Review Zones. Required geologic reviews shall examine all potential seismic hazards, and may consist of a Geologic Hazards Assessment and a more complete investigation where required. Such assessment shall be prepared by County staff under supervision of the County Geologist, or a certified engineering geologist may conduct this review at the applicant's choice and expense.

Policy 6.1.2 Geologic Reports for Development in Alquist-Priolo Zones. Require a preliminary geologic report or full engineering geology report for development on parcels within Alquist-Priolo State-designated seismic review zones.

Policy 6.1.3 Engineering Geology Report for Public Facilities in Fault Zones. Require a full engineering geology report by a certified engineering geologist whenever a significant potential hazard is identified by a Geologic Hazard Assessment or Preliminary Geologic Report, and prior to the approval of any new public facility or critical structure within the designated fault zones.

Policy 6.1.4 Site Investigation Regarding Liquefaction Hazard. Require site-specific investigation by a certified engineering geologist and/or civil engineer of all development proposals of more than four residential units in areas designated as having a high or very high liquefaction potential. Proposals of four units and under and non-residential projects shall be reviewed for liquefaction hazard through environmental review and/or geologic hazards assessment, and when a significant potential hazard exists a site-specific investigation shall be required.

Policy 6.1.5 Location of New Development Away From Potentially Hazardous Areas. Require the location and/or clustering of development away from potentially hazardous areas where feasible and condition development permits based on the recommendations of the site's Hazard Assessment or other technical reports.

Objective 6.2 Slope Stability. To reduce safety hazards and property damage caused by landslides and other ground movements affecting land use activities in areas of unstable geologic formations, potentially unstable slopes and coastal bluff retreat.

Policy 6.2.1 Geologic Hazards Assessments for Development On and Near Slopes. Require a geologic hazards assessment of all development, including grading permits, that is potentially affected by slope instability, regardless of the slope gradient on which the development takes place. Such assessment shall be prepared by County staff under supervision of the County Geologist, or a certified engineering geologist may conduct this review at the applicant's choice and expense.

Policy 6.2.2 Engineering Geology Report. Require an engineering geology report by a certified engineering geologist and/or a soils engineering report when the hazards assessment identifies potentially unsafe geologic conditions in an area of proposed development.

Policy 6.2.3 Conditions for Development and Grading Permits. Condition development and grading permits based on the recommendations of the Hazard assessment and other technical reports.

Affected Environment

This section is primarily a summary of the analysis documented in the *Preliminary Geotechnical Design Report Santa Cruz County Regional Transportation Commission-State Route 1 Aux Lanes and Bus-on-Shoulder (Freedom Boulevard to State Park Drive), County of Santa Cruz, California* prepared for the project (Parikh Consultants, Inc. 2022). Where data from other sources have been used, those sources are cited.

Regional Geology

The project lies on the coastal plain between the Santa Cruz Mountains and north shore of Monterey Bay being contained within the geologically complex and seismically active California Coast Ranges Geomorphic Province.

Sub-parallel northwest-trending faults, mountain ranges, and valleys characterize Coast Ranges topography.

The Jurassic-Cretaceous Franciscan Complex and Great Valley sequence sediments comprise the oldest Coast Ranges bedrock units. Subsequently, younger volcanic and sedimentary rocks were deposited throughout the province. Extensive late Cretaceous through early Tertiary folding and thrust faulting created complex geologic structural conditions that underlie the highly varied topography of today. Valley bedrock of the Coast Ranges is covered by thick locally and distally derived alluvium and soils.

Site Geology

The project alignment appears to be built upon Pleistocene lowest emergent coastal terrace deposits and cut and filled where drainages or overpasses/underpasses occur. Topography is relatively flat with creeks incising into Pleistocene lowest emergent coastal terrace deposits. The main creeks drain south from Pleistocene coastal terrace deposits and the Santa Cruz Mountains and have typically incised into the Pleistocene lowest emergent coastal terrace deposits at about 40–55 feet. Elevations increase along the project alignment from west to east from approximately 33 feet to 166 feet.

Bedrock of the project area consists primarily of the Purisima Formation which is described as very thick bedded yellowish-gray tuffaceous and diatomaceous siltstone containing thick interbeds of bluish-gray, semi-friable, fine-grained andesitic sandstone, with a thickness of 3,000 feet. The unit is mapped as outcropping between about SCR-1-post mile 10.15 to 9.99 and SCR-1-post mile 9.67 to 9.59 covering approximately 20% of the project alignment.

No protected natural landmarks, “outstanding examples of major geological features,” or protected topographic and geologic features are in the project area (National Park Service 2022).

Primary Seismic Hazards

The project site is located in Santa Cruz County and lies within one of the most seismically active areas of the United States. The area is influenced mostly by the San Andreas fault system, which spans the Coast Ranges from the Pacific Ocean to the San Joaquin Valley. The project is between two major active faults, the San Andreas and San Gregorio, approximately 6.1 miles northeast and 15.2 miles southwest to the project site, respectively. A fault map of the area is shown on Plate 3 of the geotechnical report.

The State of California considers two aspects of earthquake events primary seismic hazards: surface fault rupture (i.e., disruption at the ground surface as a result of fault activity) and seismic ground shaking.

Surface Fault Rupture

The project site is not within the Alquist-Priolo Earthquake Zone. The U.S. Geological Survey Quaternary Fault and Fold Database does not show any faults aged less than 15,000 years within 1,000 feet of the project site (USGS 2017). Therefore, the potential for ground surface rupture due to faulting is considered low.

Strong Ground Shaking

According to the Santa Cruz County *Local Hazard Mitigation Plan 2021–2026* (County of Santa Cruz 2021), past experience has shown that the entire county is vulnerable to earthquake hazards including severe ground shaking. The preliminary geotechnical report for the project has identified a horizontal peak ground acceleration of 0.74 gravity at the project location (Parikh Consultants, Inc. 2022).

Secondary Seismic Hazards

Secondary seismic hazards refer to seismically induced landsliding, liquefaction, and related types of ground failure. These hazards are addressed briefly below.

Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and silts of low relative density are the type of soils that usually are susceptible to liquefaction. Clays are generally not susceptible to liquefaction.

The liquefaction potential was evaluated in accordance with the methods proposed in Liquefaction Evaluation Module of Caltrans Geotechnical Manual (January 2020). The evaluation was done using the boring data from all the available borings using a magnitude 7.07 earthquake and a peak ground acceleration of about 0.74 gravity. This method compares the estimates of the earthquake-induced shear stress to the susceptibility of soil liquefaction.

Based on the preliminary liquefaction analysis of as-built subsurface data, the liquefaction potential along a majority of the alignment is low since groundwater was not encountered in most of the as-built boring logs. The liquefaction potential needs to be studied further in the plans, specifications, and estimates phase based on additional subsurface data. If liquefaction potential exists, the loss of strength due to liquefaction should be considered in the design (Parikh Consultants, Inc. 2022).

Landslides

Landslides occur when shear stress in a soil or rock mass exceeds shear strength. Shear stress can be increased by adding to the weight of soil or rock mass through saturation or loading. Shear strength can be reduced by erosion or by grading at the toe of a slide mass. Slope failure can be caused by an increase in shear stress or a decrease in shear strength. Zones of low shear strength are often associated with the presence of expansive clays and weak bedrock units. Earthquake-induced ground shaking can cause activation of new or previously existing landslides and other slope instabilities, especially during periods of high groundwater.

The geomorphology of the project alignment is dominated by coastal terraces with creeks incising down to alluvial covered bedrock; the steepest natural slopes are found along creek banks. The steepest slopes of the alignment appear to be engineered. Geological mapping does not indicate the presence of historical or Quaternary landslides along the project alignment. However, several Quaternary landslides are mapped within about 300–500 feet from the southern part of the alignment.

Tsunami

Tsunamis are large ocean waves generated by major seismic events. Santa Cruz County is located on Monterey Bay. Several active and potentially active earthquake faults are located within or near Santa Cruz County. An earthquake occurring in or near any of the nearby faults could result in local source tsunamis from submarine landsliding in Monterey Bay. Additionally, distinct-source tsunamis from the Cascadia Subduction Zone to the north, or teletsunamis from elsewhere in the Pacific Ocean, are also capable of causing significant destruction. According to the Soquel Tsunami Inundation Map for Emergency Planning, Aptos Creek is susceptible to tsunami inundation. According to the county's *Local Hazard Mitigation Plan 2021–2026*, the tsunami inundation area includes Aptos Creek up from the Pacific Ocean to just north of State Route 1 (County of Santa Cruz 2021).

Erosion

According to the preliminary geotechnical report for the project, erosion ratings in the project area primarily fall into the severe category with a few areas slight to moderate (Parikh Consultants, Inc. 2022). A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that roads or trails may require occasional maintenance, and that simple erosion control measures are needed; and *severe* indicates that significant erosion is expected, that roads or trails require frequent maintenance, and that costly erosion control measures are needed.

Expansive Soil

Expansive soils are generally clays or sedimentary rocks derived from clays, which experience volume changes as a result of moisture variation. The hazard that expansive soils create can be significant. Many of the expansive soils do not create large areas of destruction; however, they can disrupt supply lines (i.e., roads, power lines, railways, and bridges) and damage structures. The effects on structures can be dramatic if expansive soils supporting structures are allowed to become too wet or too dry.

According to the preliminary geotechnical report for the project, expansive clays were not encountered near the surface in the borings. This should be verified during the Plans, Specs, and Estimates phase. If expansive soils are encountered during the Plans, Specs, and Estimates phase field investigation, it is recommended to perform laboratory tests such as Plasticity Index, Expansion Index, and R-value to investigate the expansive soil properties of the subsurface soils underlying the project site. There would be an impact on the structural pavement design and/or shallow footings if expansive soil is encountered in the pavement subgrade or footing subgrade (Parikh Consultants, Inc. 2022).

Environmental Consequences

Build Alternative

Geological conditions are similar along much of the project alignment for both State Route 1 and the Coastal Rail Trail. Therefore, the project would have the same potential for effects and, except where noted, different trail configurations are not discussed separately in this section.

Seismic Hazards and Slope Instability

The risk of strong seismic ground shaking in the project area is high; however, compliance with appropriate building regulations would ensure that the bridge foundations, bridge, roadways, trails, retaining walls and other project features are not damaged as a result of seismic activity. The project would comply with Caltrans' Seismic Design Criteria to implement earthquake design and construction measures.

There is a risk of secondary seismic hazards related to slope instability and liquefaction because of the slope of the creek banks, the potential for creek erosion, and the potential for liquefaction. Liquefaction or excessive erosion could cause bridge damage or failure. Site-specific field exploration and laboratory testing, including cone penetration tests and borings, would be necessary to develop final geotechnical engineering properties and design criteria for bridge foundations, project retaining walls, earthwork, and pavement design. This work would be performed as part of the final bridge design process. As described in the preliminary geotechnical report (Parikh Consultants, Inc. 2022), this work would include evaluating the engineering

properties of the subsurface soil materials for recommendation of geotechnical parameters and to address geotechnical hazards associated with different design elements (e.g., slope stability, settlement) and hazards associated with strong ground motion (e.g., shaking, liquefaction). Accordingly, seismic hazards would be evaluated further and addressed during final design. All structures would be designed using Caltrans' Seismic Design Criteria to meet the minimum seismic requirements for highway bridges designed in California.

Liquefaction

Liquefaction potential is low at the project location based on existing subsurface data; however, it would be verified during the Plans, Specs, and Estimates phase (Parikh Consultants, Inc. 2022).

Landslides

Geological mapping does not indicate the presence of historical or Quaternary landslides along the project alignment. However, several Quaternary landslides are mapped within about 300–500 feet from the southern part of the alignment. These landslides do not appear to be a potential hazard to the project (Parikh Consultants, Inc. 2022). In addition, retaining walls would be constructed as described in Chapter 1, which would reduce effects of potential landslides.

Tsunami

Conditions under the project would be similar to the existing conditions and would not increase the potential of site inundation. According to the County's Local Hazard Mitigation Plan, the tsunami inundation area includes Aptos Creek up from the Pacific Ocean to just north of State Route 1 (County of Santa Cruz 2021). People would be given sufficient warning to evacuate the project site by the West Coast and Alaska Tsunami Warning Center, which monitors earthquakes and issues tsunami warnings when a tsunami is forecast to occur.

Erosion

Ground-disturbing earthwork associated with construction at the project site may increase soil erosion rates or loss of topsoil. Compliance with the erosion-related requirements applicable to the project would ensure that the construction activities do not result in significant erosion. These requirements are described in the Caltrans' *Construction Site Best Management Practices Manual* (2017) and the *Statewide Stormwater Management Plan* (2016) and *Water Pollution Control Program (WPCP) Preparation Manual* (2021).

Expansive Soil

Expansive soil, as defined in Table 18-1 of the Uniform Building Code (1994), do not appear to be extensive in the project area but could occur locally; the potential impact on project structures would be evaluated during final design. All construction and engineered fills would comply with Caltrans' Standard Specifications, and all construction would compact the roadway subgrade in accordance with Caltrans' Standard Specifications.

No-Build Alternative

There are no known seismic issues related to the existing bridge, roads, or other structures. The No-Build Alternative would not result in adverse effects related to strong ground motion, liquefaction, slope instability, or seismic settlement. Because the No-Build Alternative would not involve soil disturbance, soil erosion would not increase.

Avoidance, Minimization, and/or Mitigation Measures

The project would be designed to meet all Caltrans seismic engineering requirements. The following avoidance and minimization measures would reduce impacts relating to geology.

- **AMM-GEO-1:** A site-specific seismic hazard engineering analysis will be conducted during final design, which will include engineering recommendations for retaining walls, expansive soil treatment, cuts and fills, and bridge foundation elements.
- **AMM-GEO-2:** The specific seismic hazard engineering analysis will include design measures to address surface drainage, slope maintenance, and surface protection/erosion control. In addition, the seismic hazard engineering analysis will include design measures to minimize the potential damage from ground shaking, fault rupture, liquefaction, lateral spreading, and slope instability. The following requirements will be incorporated as part of the seismic hazard engineering analysis:
 - Replanting will be incorporated into project plans to protect any new slopes.
 - Permanent erosion control measures, such as infiltration devices, media filters, and detention devices, will be applied to all new or exposed slopes. Ditches, berms, dikes, swales, overside drains, flared end sections, and outlet protection/velocity dissipation devices will be designed to handle concentration flows.
 - Slope and surface protection systems with vegetated surfaces and hard surfaces will be employed to minimize erosion.
- **AMM-GEO-3:** To minimize potential damage from ground shaking, structures associated with this project will meet maximum credible earthquake standards, as established by the Caltrans Office of

Earthquake Engineering. Caltrans has established Seismic Design Criteria for incorporating seismic loads in the design of structures (Caltrans 2019). Structure design, including bridges, will reflect these design guidelines. Impacts from ground shaking and fault rupture are to be mitigated using appropriate Caltrans design methods, such as the use of stone columns, subexcavation, dynamic compaction, or dewatering methods. For foundation design of structures having concentrated loads (e.g., bridges), design will address the additional loads generated by the liquefaction conditions. The most suitable method(s) will be selected based on site-specific subsurface investigations conducted as part of the seismic hazard engineering analysis.

- **AMM-GEO-4:** Site-specific engineering recommendations to minimize impacts from lateral spreading will be incorporated into the final design plans and construction contract documents. Angled piles may be needed to lessen lateral pressures of creek banks to resist lateral spreading.
- **AMM-GEO-5:** Localized movements along creek banks will be controlled by incorporating in the project design appropriate permanent slope protection, including rock riprap or revetment. Structures, such as retaining walls, will be required to mitigate specific conditions. Site-specific engineering recommendations to minimize long-term impacts due to landsliding will be defined based upon field testing during the final design phase and incorporated in the final design.

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2.2.4 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

16 United States Code (U.S. Code) 461–467 established the National Natural Landmarks program. Under this program property owners agree to protect biological and geological resources such as paleontological features. Federal agencies and their agents must consider the existence and location of designated National Natural Landmarks, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under NEPA.

23 U.S. Code 1.9(a) requires that the use of federal-aid funds must be in conformity with all federal and state laws. 23 U.S. Code 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 U.S. Code 431–433 above and state law.

The countywide Conservation and Open Space elements of the County of Santa Cruz General Plan (County of Santa Cruz 1994) includes one goal (objective) and three policies regarding paleontological resources. Objective 5.9 is to protect paleontological, geological, and hydrological resources that stand out as rare or unique and representative in the county of Santa Cruz because of their scarcity, scientific or educational value, aesthetic quality, or cultural significance. Policy 5.9.1 protects paleontological, geological, and hydrological resources through the environmental review process and by designating such sites in the County of Santa Cruz General Plan. Policy 5.9.2 protects paleontological, geological, and hydrological resources through easements and land dedications where possible. Policy 5.10.1 protects paleontological resources through designation as a visual resource defined as having regional public importance for their natural beauty or rural agricultural character.

Affected Environment

A Paleontological Evaluation Report was prepared for this project in March 2022 (Cogstone Resource Management Inc. and Stantec Consulting Services, Inc. 2022). This section is based on the findings of that report.

The project lies on the coastal plain between the Santa Cruz Mountains and the north shore of Monterey Bay contained within the California Coast Ranges Geomorphic Province. State Route 1 crosses a relatively flat-lying

portion of the coastal plain in the project area where uplifted coastal terrace deposits and underlying sedimentary bedrock have been incised by several streams. The streams are heavily vegetated, and the surface of the terraces is mostly built over due to the project being in an urban environment.

The surface of the project is mapped as Holocene-aged (less than about 11,700 years old) alluvium, alluvial fan deposits, and colluvium; Pleistocene-aged (about 11,700 years to 2.6 million years old) alluvial fan deposits, undivided and eolian Aromas Sand and marine terrace deposits; and the Purisima Formation which is Miocene to Pliocene in age (about 2.5 to 6.9 million years old). Pleistocene-aged sediments and/or the Purisima Formation occur at depth below the Holocene-aged sediments.

Holocene-aged alluvial and floodplain deposits generally consist of loose gravel, sand, silt, and clay that was deposited by streams, and can be found in drainages across the project alignment. These deposits are considered to have low paleontological potential because they are too young to contain fossils. However, the thickness of these deposits varies across the project alignment and older, paleontologically sensitive deposits may underlie them as shallow as 1 foot below the ground surface.

A record search from the University of California Museum of Paleontology did not identify Pleistocene-aged fossil localities within the project limits or within a 1-mile radius of the project. However, fossils are known from Pleistocene-age deposits in the greater Santa Cruz area, including two occurrences of extinct Columbian mammoth (*Mammuthus columbi*), deer (*Cervus* sp.), and unidentified mammal. Pleistocene-aged deposits are therefore considered to have a high paleontological potential.

The records search from the University of California Museum of Paleontology indicated there are 11 invertebrate localities from the Purisima Formation within a 1-mile radius of the project area. The Purisima Formation is considered to have a high paleontological potential. Thirty-five vertebrate localities were present from the Purisima Formation throughout Santa Cruz County, many of which were recovered from the Santa Cruz area. Specimens of sea cow, various pinnipeds, dolphins and whales, sea birds, and fish have been recovered from this formation throughout the county. The Purisima Formation is widespread in the Santa Cruz-Aptos area and underlies coastal terrace deposits within the project limits. The Purisima Formation is well exposed in sea cliffs to the south of the project. The Purisima Formation generally consists of weakly cemented, conglomerate, sandstone, siltstone, and claystone deposited in a marine environment.

Environmental Consequences

Build Alternative

Direct impacts on paleontological resources generally occur during ground-disturbing construction operations. Excavations into geologic rock units with high paleontological potential can result in the physical destruction of fossils. The potential for sensitive paleontological resources is similar along much of the project alignment for both State Route 1 and the Coastal Rail Trail. Therefore, the project would have the same potential for effects and, except where noted, different trail configurations are not discussed separately in this section.

The project has the potential to disturb high paleontological potential units which include Pleistocene-aged alluvial fan deposits, undivided and eolian Aromas Sand and marine terrace deposits; and the Miocene to Pliocene-aged Purisima Formation. Additionally, Pleistocene-aged sediments and/or the Purisima Formation occur at depth below low paleontological potential Holocene-aged sediments. The Pleistocene sediments and the Purisima Formation have produced fossils near the project area and elsewhere in the county.

For the most part, fossils of extinct Pleistocene animals start appearing at about 8 feet below the surface of California's large valleys where Holocene-aged deposits are mapped at the surface. Accordingly, all areas mapped as Holocene-aged sediments are assigned low paleontological sensitivity less than 8 feet below the original surface and high sensitivity at depths of over 8 feet (Figures 2-18 through 2-20 and Table 2-45). Due to the abundant vertebrate fossils that have been recovered from Pleistocene-aged sediments and the Purisima Formation elsewhere in the county, these units are given a high paleontological sensitivity at any depth.

Table 2-45. Geologic Unit Sensitivity

Geologic Unit	Caltrans Sensitivity
Holocene deposits (alluvium, alluvial fans, colluvium) 0-8 feet below ground surface	Low
Holocene deposits (alluvium, alluvial fans, colluvium) greater than 8 feet below ground surface	High
Pleistocene deposits (alluvial fan, undivided and eolian Aromas Sand, marine terrace deposits)	High
Purisima Formation, Pliocene and late Miocene	High

No-Build Alternative

Under the No-Build (No-Action) Alternative, there would be no impacts on paleontological resources because no construction would occur.

Avoidance, Minimization, and/or Mitigation Measures

Ground disturbance during project construction in areas or at depths where geologic units with high paleontological potential are present could adversely affect paleontological resources. However, implementation of Mitigation Measure PALEO-1 as described in Section 2.2.4, would reduce impacts on paleontological resources.

Preparation and Implementation of a Paleontological Mitigation Plan

- **Mitigation Measure-PALEO-1:** Prior to the start of excavations, a qualified Principal Paleontologist (M.S. or Ph.D. in paleontology or geology familiar with paleontological procedures and techniques) will be retained to prepare and implement a detailed Paleontological Mitigation Plan prior to the start of construction. The Paleontological Mitigation Plan will include the following elements and stipulations:
 - The Paleontological Mitigation Plan will identify all areas where excavation will disturb in situ geologic units identified as highly sensitive for paleontological resources.
 - Spot checking may be required to confirm the extent of the low sensitivity deposits should they overlie high sensitivity units. This includes areas of artificial fill and Holocene-aged sediments.
 - Full-time monitoring will be required where disturbance would be more than 8 feet deep into Holocene-aged sediments as well as all impacts on the Purisima Formation and Pleistocene-aged sediments.
 - Requirements for reduction of monitoring effort.
 - The paleontological monitor's authority to temporarily halt or divert construction equipment to investigate finds.
 - Protocols for fossil recovery, preparation, and curation.
 - Other pertinent items for the Paleontological Mitigation Plan as per Chapter 8 of Caltrans' Paleontology Standard Environmental Reference (Caltrans 2016).
- The qualified Principal Paleontologist will be present at pre-grading meetings to consult with grading and excavation contractors.
- Before excavation begins, a training session on fossil identification and the procedures to follow should fossils be encountered will be conducted by the Principal Paleontologist or their designee for all personnel involved in earthmoving for the project.
- If unanticipated discoveries of paleontological resources occur during project construction, all work within 25 feet of the discovery must cease and the find must be protected in place until it can be evaluated by a qualified paleontologist. Work may resume immediately outside of the 25-foot radius.

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2.2.5 Hazardous Waste/Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste; and the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the Resource Conservation and Recovery Act of 1976. The purpose of the Compensation and Liability Act, often referred to as “Superfund,” is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for “cradle-to-grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, Executive Order 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is authorized by the federal government to implement the Resource Conservation and Recovery Act in the state. California law addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could affect ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 *Environmental Health Standards for the Management of Hazardous Waste*, Title 23 *Waters*, and Title 27 *Environmental Protection*.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material are vital if it is found, disturbed, or generated during project construction.

Santa Cruz County Environmental Health Division

The Santa Cruz County Environmental Health Division has been designated by Cal-EPA as the Certified Unified Program Agency for the County. As the Certified Unified Program Agency, the division is responsible enforcing the local ordinance and state laws pertaining to use and storage of hazardous materials, including the issuance and administration of Hazardous Materials Management Plans.

The Regional Transportation Commission and Santa Cruz County Environmental Health have entered into a Remedial Action Agreement for the Santa Cruz Branch rail line right-of-way. Under the agreement, the Regional Transportation Commission must notify the County Environmental Health Division of projects along the rail line. The Santa Cruz County Environmental Health is the regulatory oversight agency for characterization and potential remedial action under Sections 101480 through 101490 of the California Health and Safety Code.

Affected Environment

This section was prepared using information from the Initial Site Assessment prepared for the project (WRECO 2022). Additional site investigations would be conducted during the design phase of the project to further analyze potential routine hazardous waste construction issues

The Initial Site Assessment identified the following potential recognized environmental conditions within the project corridor:

Site Reconnaissance

The purpose of a site reconnaissance is to assess for current land-use activities and environmental conditions and to identify any existing or potential recognized environmental conditions within the project limits and adjoining properties. The visual survey is to collect information regarding potential hazardous material contamination, including evidence of current or past use; evident storage of toxic or hazardous materials; presence of onsite lagoons, pits, sumps, landfills, drywells, waste streams, or other disposal units; visible soil contamination; and aboveground or underground storage tanks, drums, barrels, and other storage containers.

Site visits were conducted on February 3, 2021, to evaluate the existing conditions within the proposed Segment 12 and on February 8, 2021, for State Route 1 project limits.

Agricultural Land Uses

Previous land uses in the project area include residential, commercial, agricultural, and railroad right-of-way. Review of old aerial photographs and topographic maps indicated that properties along the proposed project area right-of-way have been in agricultural use from the early 1940s to mid- to late 1950s. Therefore, soils within the project area could be contaminated with hazardous levels of herbicides, pesticides, and arsenic (used as an herbicide in the early 20th century).

Aerially Deposited Lead

Aerially deposited lead from the historical use of leaded gasoline, exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of aerially deposited lead on the state highway system right-of-way within the limits of the project alternatives. Soil determined to contain lead concentrations exceeding stipulated thresholds must be managed under the July 1, 2016, Aerially Deposited Lead Agreement between Caltrans and the California Department of Toxic Substances Control. This Aerially Deposited Lead Agreement allows such soils to be safely reused within the project limits as long as all requirements of the Aerially Deposited Lead Agreement are met.

Aerially deposited lead can be found in the surface and near-surface soils along nearly all roadways because of the historical use of tetraethyl lead in motor vehicle fuels. Areas of primary concern are soils along routes that have had high vehicle emissions from large traffic volumes or congestion during the period when leaded gasoline was in use (generally prior to 1986). Typically, aerially deposited lead is found in shoulder areas and has high solubility when subjected to the low pH conditions of waste characterization tests. Shoulder soils along urban and heavily traveled rural highways are commonly above the Soluble Threshold Limit Concentration criteria.

Aerially deposited lead could be encountered during construction and grading activities within the proposed project limits along State Route 1, Rio Del Mar Boulevard, Soquel Drive, and State Park Drive, which have been present in various alignments since 1954 and, therefore, have the potential to be contaminated with aerially deposited lead.

Treated Wood and Pole-Mounted Transformers

Treated wood is wood that has preservative chemicals that protect it from insect attack and fungal decay during its use. Typical uses in the highway environment include signposts, metal beam guardrail wood posts, and lagging on retaining walls. The chemical preservatives used, however, are hazardous and pose a risk to human health and the environment. Metals (arsenic, chromium, and copper), and polyaromatic hydrocarbons (creosote and pentachlorophenol), are among the chemicals used. These chemicals are known to be toxic or carcinogenic. Harmful exposure to these chemicals may

result from skin contact with treated wood waste or from inhalation or ingestion of treated wood waste particulate (e.g., sawdust, smoke) as this material is handled. Utility poles along the frontage roads and railroad ties along the Santa Cruz Branch Rail Line likely contain chemical preservatives and would pose a threat to human health if mishandled.

Pole-mounted electrical transformers associated with overhead electrical services may contain polychlorinated biphenyls. Utility poles along the frontage roads and bridges crossing State Route 1 have pole-mounted transformers.

Railroad Corridor

Soils next to railroad tracks typically have been affected by heavy metals, total petroleum hydrocarbons as diesel, fuel oil, and polychlorinated biphenyls. Soils along railroad tracks may be affected by locomotives (total petroleum hydrocarbons as diesel), railroad ties (polynuclear aromatics), and slag ballast used to set the ties (heavy metals). Consequently, it is possible that soil and groundwater in the immediate area of the railroad line are contaminated.

Previous investigations identified arsenic and other pesticides, lead, petroleum products, and polycyclic aromatic hydrocarbons along the rail corridor. Railroad ties are typically treated with creosote, a pesticide product used as a wood preservative. The major chemicals in coal tar creosote that can be harmful to humans are phenols, cresols, and polycyclic aromatic hydrocarbons.

As development along the rail corridor has taken place, further soil testing has confirmed that there is contamination along the rail corridor, with arsenic being the primary contaminate of concern. Arsenic is highly toxic to humans and the screening levels for arsenic are very low (0.06 parts per million in soil for residential use). Remediation is complicated by the fact that there is naturally occurring levels of arsenic in soil that varies dramatically from location to location in the County. (Santa Cruz County 2018).

Asbestos-Containing Materials

The National Emissions Standards for Hazardous Air Pollutants (40 Code of Federal Regulations 61(M)) and federal Occupational Safety and Health Administration classify asbestos-containing materials as any materials or products that contain more than 1% asbestos. Nonfriable asbestos-containing materials are classified by the National Emissions Standards for Hazardous Air Pollutants as either Category I or II material, including materials sometimes found in bridges, rail shims, pipes, pipe coverings, expansion joint facings, and certain cement products. Regulated asbestos-containing materials, which are a hazardous waste when friable, are classified as any

materials that contain more than 1% asbestos by dry weight and have any of the following attributes.

- Friable (i.e., can be crumbled, pulverized, or reduced to powder by hand pressure)
- A Category I material that has become friable
- A Category I material that has been subjected to sanding, grinding, cutting, or abrading
- A Category II nonfriable material with a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities

Activities that disturb materials containing any amount of asbestos are subject to certain requirements of the California Division of Occupational Safety and Health asbestos standard found in 8 California Code of Regulations 1529. Typically, removal or disturbance of more than 100 square feet of materials containing more than 1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the materials contain 1% or less of asbestos. When the asbestos content of materials exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to National Emissions Standards for Hazardous Air Pollutants. Regulated asbestos-containing materials (friable asbestos-containing materials and nonfriable asbestos-containing materials that will become friable during demolition operations) must be removed from structures before they are demolished. Certain nonfriable asbestos-containing materials and materials containing 1% or less of asbestos may remain in highway structures, such as guardrail and bridges, during demolition; however, waste handling and disposal issues and the California Division of Occupational Safety and Health work requirements may make this cost prohibitive. With respect to potential worker exposure, notification, and registration requirements, the California Division of Occupational Safety and Health defines asbestos-containing materials as construction materials that contain more than 1% asbestos (8 CCR 341.6).

Asbestos-containing materials could be in buildings built before 1980 slated for demolition and the piers and abutments of the railroad bridges over State Route 1, which would be reconstructed to accommodate the widened highway and to include the Coastal Rail Trail on the reconstructed bridges.

Known Recognized Environmental Conditions

This section describes known recognized environmental conditions in the project study area (i.e., project limits plus 1-mile buffer) that are considered moderate to high for contamination potential. Recognized environmental conditions with a low potential for contamination outside of project limits can

be found in the Initial Site Assessment (WRECO 2022). Prepared for the project and consist mostly of cases considered closed, listings of storage tanks and hazardous waste generators not in violation, and several regulatory-related infractions.

The Safeway Fuel Station located at 18 Rancho Del Mar in Aptos (Assessor's Parcel Number 039-221-04), is approximately 440 feet from the project limits. Soil and groundwater at this location were contaminated with gasoline. Cleanup was completed and the case closed as of September 17, 2012. However, residual soil and groundwater contamination may still exist onsite that could expose workers and the public to contaminants during activities such as site grading, excavation, or dewatering.

The Central Coast Water Board, Santa Cruz County Environmental Health Services, and the appropriate local planning and building departments must be notified prior to any changes in land use, grading activities, excavation, or dewatering. This notification must include a statement that residual soil and groundwater contamination underlie the property and nearby properties. The levels of residual contamination and any associated risks are expected to reduce with time.

Environmental Consequences

Build Alternative

Construction activities involving ground disturbance or dewatering activities could potentially expose workers and the public to the following hazards and hazardous conditions, regardless of phase or configuration. Both the interim first phase and the ultimate trail configuration would require similar ground disturbance and would encounter similar recognized environmental condition types. Therefore, the project would have the same potential for effects involving similar hazards and hazardous materials and, except where noted, different trail configurations are not discussed separately in this section.

All impacts discussed in this section could happen during construction of the project, particularly during ground disturbance and dewatering activities.

Soil and Groundwater Contamination

Humans and the environment could be exposed to soil and groundwater contamination from construction activities. Acquisition of right-of-way from parcels with the potential to contain soil/groundwater contamination discussed above include the Safeway Fuel Station (Assessor Parcel Number 039-221-04).

Although there are no known recognized environmental conditions of high contamination potential, testing for contaminants should be conducted prior to property acquisition and construction of the proposed project to determine the extent and nature of possible contamination; and identify and implement

appropriate avoidance and containment measures. During construction of the project, the potential for human exposure (i.e., construction workers) to existing contaminated soil or groundwater would occur mainly during ground-disturbing and dewatering activities.

Previously Unknown Hazardous Materials

The potential exists for exposure of construction workers or nearby sensitive land uses to previously unknown hazardous materials during construction activities. Due to previous land uses that include tank farms, the project area generally has a moderate risk of previously unreported hazardous materials that could be discovered during construction of the proposed project.

Known Hazardous Land Uses

The project area generally has the potential for presence of hazardous materials in the form of aerially deposited lead, lead-based paint, and chromium in yellow/white traffic striping. Construction workers could be exposed to hazardous materials during ground-disturbing activities such as grading and roadbed resurfacing at any of the areas known to contain hazardous substances.

The Initial Site Assessment identified areas of moderate concern that would be affected by the project. These areas and topics of concern include the following.

- Aerially deposited lead could be encountered during construction and grading activities within the proposed project limits along State Route 1, Rio Del Mar Boulevard, Soquel Drive, and State Park Drive, which have been present in various alignments since 1954.
- Yellow and white traffic striping and markings are located along Trout Gulch Road, Soquel Drive, State Park Drive, Spreckels Drive, Rio Del Mar Boulevard, and State Route 1.
- Heavy metals, arsenic, total petroleum hydrocarbons as diesel, fuel oil, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls are potentially present in parcels containing railroad tracks or former railroad alignments. Regardless of project phase, there is the potential to encounter any number of hazardous materials within the railroad corridor. However, because the optional first phase would remove the existing rails and railroad ties, which likely contain creosote, the potential to encounter hazardous materials is somewhat greater than under the ultimate trail configuration.
- Past agricultural land uses could contain hazardous materials such as herbicides, pesticides, and arsenic (used as an herbicide in the early 20th century).

- Pole-mounted electrical transformers associated with overhead electrical services may contain polychlorinated biphenyls. Utility poles along the frontage roads and bridges crossing State Route 1 have pole-mounted transformers. Whether any of these transformers contain polychlorinated biphenyls, which are typically associated with pole-mounted transformers, is unknown.
- Treated wood waste containing chemicals known to be toxic or carcinogenic. Harmful exposure to these chemicals may result from skin contact with treated wood waste or from inhalation or ingestion of treated wood waste particulate (e.g., sawdust, smoke) as this material is handled. Utility poles along the frontage roads and railroad ties along the Santa Cruz Branch Rail Line likely contain chemical preservatives and would pose a threat to human health if mishandled.
- Asbestos-containing materials could be in buildings built before 1980 slated for demolition and the piers and abutments of the railroad bridges over State Route 1. Lead-based paint could be in painted surfaces of pre-1980 buildings and the railroad bridges, which would be reconstructed to accommodate the widened highway and to include the Coastal Rail Trail on the reconstructed bridges.

Hazardous Conditions from Construction Equipment

Humans and the environment could be exposed to hazardous conditions from the accidental release of hazardous materials during construction activities. Construction would involve the use of heavy equipment, involving small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous conditions in the project area.

In addition to environmental protections established by state and federal law, County and Caltrans policies and standards address responsibilities for hazardous conditions. Construction of the proposed project would conform with applicable policies related to hazards and hazardous materials in the elements of the County General Plan, and Caltrans Standard Specifications Section 14, Environmental Stewardship (Caltrans 2018:225–240). Complying with all applicable laws and regulations would avoid adverse effects related to hazardous waste and materials.

No-Build Alternative

No construction would take place under the No-Build Alternative; therefore, there would be no potential to expose workers or nearby land uses to soil or groundwater contamination, or hazardous materials from construction activities. The No-Build Alternative would not result in right-of-way acquisition or construction disturbance related to a new trail or highway improvements. Therefore, this alternative would not result in any direct effects regarding hazardous waste and materials.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is necessary. Compliance with local, state, and federal policies, standards, and laws would avoid or minimize effects related to hazardous waste and materials. The following avoidance and minimization measures provide project-specific direction and would be implemented prior to and during construction, consistent with applicable regulations.

AMM HAZ-1: A Preliminary Site Investigation of the subsurface soils and/or groundwater will be completed within the project boundaries to investigate the depth and lateral extent of contamination within the project. At a minimum, the Preliminary Site Investigation screening will investigate each area identified below where construction is anticipated to disturb the subsurface soil or encounter groundwater.

The project proponent will conduct a Preliminary Site Investigation for the following recognized environmental conditions within the proposed acquisition area of the project.

- **Agricultural Land Uses:** Sample and test soils for pesticides and metals along State Route 1 from State Park Drive to Freedom Boulevard where historic agricultural land uses were identified in the Initial Site Assessment. The estimated cost of collection and testing soil within these parcels totals approximately \$54,000. Implementation could take up to 4 days.
- **Aerially deposited lead:** Analyze soil samples from road shoulders along State Route 1, Rio Del Mar Boulevard, Soquel Drive, and State Park Drive for total lead.
- **Treated wood waste /Pole-Mounted Transformers:** Analyze soil samples for polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and metals near utility pole where soil disturbance might occur during construction.
- **Railroad Corridor Hazards:** Analyze soil samples for metals, arsenic, semi-volatile organic compounds polycyclic aromatic hydrocarbons, and polychlorinated biphenyls along the railroad corridor.

The project proponent will coordinate and consult with the Santa Cruz Environmental Health Division for soil testing and remediation along the railroad corridor.

- **Asbestos-containing materials:** Sample and test for asbestos-containing materials in any buildings build before 1980 slated for demolition and concrete portions of the Rio Del Mar Boulevard overcrossing and the railroad bridges.
- **Traffic Striping:** Sample and test traffic striping and painted surfaces on the railroad bridges for lead-based paint. Samples to be obtained from areas that will be disturbed during construction.

Based on the findings of the Preliminary Site Investigation, if a soils management plan and health and safety plan are necessary, they will be prepared and implemented. Should the Preliminary Site Investigation indicate the presence of soil or groundwater contamination within the project area to be above regulatory thresholds, a Phase 3 Assessment will be conducted to investigate the depth and lateral extent of contamination within the project and remediate if necessary.

AMM HAZ-2: The project proponent will develop and implement the necessary plans and measures required by Caltrans and federal and state regulations, including a health and safety plan, best management practices, and/or an injury and illness prevention plan. The plans will be prepared and implemented to address worker safety when working with potentially hazardous materials, including potential lead or chromium in traffic stripes, aerially deposited lead, asbestos-containing materials, and other construction-related materials within the right-of-way during any soil-disturbing activity.

References

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- WRECO. 2022. State Route Highway 1 Auxiliary Lanes and Bus-On-Shoulder Improvements. Santa Cruz, California. Initial Site Assessment. Submitted to California Department of Transportation and Santa Cruz County Regional Transportation Commission. July.

2.2.6 Air Quality

Regulatory Setting

The federal Clean Air Act, as amended, is the primary federal law that governs air quality, while the California Clean Air Act is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency and the California Air Resources Board, set standards for the concentration of pollutants in the air. At the federal level, these standards are called national ambient air quality standards. National ambient air quality standards and state ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide, nitrogen dioxide, ozone, particulate matter—which is broken down for regulatory purposes into particles of 10 micrometers or smaller and particles of 2.5 micrometers and smaller, Lead, and sulfur dioxide. In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The national ambient air quality standards and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel conformity requirement under the Clean Air Act also applies.

Conformity

The conformity requirement is based on Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the national ambient air quality standards. Transportation conformity applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and maintenance (i.e., former nonattainment) areas for the national ambient air quality standards, and only for the specific national ambient air quality standards that are or were violated. U.S. Environmental Protection Agency regulations at 40 Code of Federal Regulations 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for national ambient air quality standards and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the national ambient air quality standards for carbon monoxide, Nitrogen Dioxide, ozone, Particulate Matter (10 micrometers or smaller) and Particulate Matter (2.5 micrometers or smaller), and in some areas (although not in California), Sulfur Dioxide. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except Sulfur Dioxide, and also has a nonattainment area for lead; however, lead is not currently required by the Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of regional transportation plans (RTPs) and federal transportation improvement programs that include all transportation projects planned for a region over a period of at least 20 years (for the Regional Transportation Plan) and 4 years (for the federal transportation improvement program). Regional Transportation Plan and federal transportation improvement program conformity uses travel demand and emission models to determine whether or not those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the metropolitan planning organization, Federal Highway Administration, and Federal Transit Administration make the determinations that the Regional Transportation Plan and federal transportation improvement program are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan and federal transportation improvement program must be modified until conformity is attained. If the design concept and scope and the “open-to-traffic” schedule of a proposed transportation project are the same as described in the Regional Transportation Plan and federal transportation improvement program, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming Regional Transportation Plan and federal transportation improvement program; the project has a design concept and scope that has not changed significantly from those in the Regional Transportation Plan and federal transportation improvement program; project analyses have used the latest planning assumptions and U.S. Environmental Protection Agency-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in carbon monoxide and PM nonattainment or maintenance areas to examine localized air quality impacts.

Affected Environment

Information presented in this section is based on the Air Quality Report prepared for the proposed project (Terry A. Hayes Associates Inc. 2022a).

The project is in Santa Cruz County, an area within the North Central Coast Air Basin, which includes Monterey, Santa Cruz, and San Benito counties. Air quality regulation in the North Central Coast Air Basin is administered by the Monterey Bay Air Resources District. The following discussion provides an overview of the environmental setting with regard to air quality in the North Central Coast Air Basin.

Climate, Meteorology, and Topography

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the North Central Coast Air Basin. In Santa Cruz County, coastal mountains also exert strong influence on atmospheric circulation and result in generally good air quality. However, in the summer, the generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates weak low pressure, which intensifies the onshore air flow during the afternoon and evening. Air flow in the fall can also be restricted by the Pacific High, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay Area or the Central Valley into the North Central Coast Air Basin.

The Watsonville Water Works climatological station, maintained by the National Oceanic and Atmospheric Administration, is located near the project site and is representative of meteorological conditions near the project. The climate of the project area is generally Mediterranean in character, with cool, wet winters (average 50.5 degrees Fahrenheit in January) and warm, dry summers (average 63.3 degrees Fahrenheit in July). Temperature inversions are common, affecting localized pollutant concentrations in the winter and enhancing ozone formation in the summer. Mountains averaging 3,000 to 2,000 feet in altitude tend to trap pollutants in the region by limiting air flow. Annual average rainfall is 21.52 inches (at Watsonville Climatological Station), mainly falling during the winter months.

Regional Air Quality

The Clean Air Act requires the U.S. Environmental Protection Agency to set National Ambient Air Quality Standards for six criteria air contaminants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur

dioxide. It also permits states to adopt additional or more protective air quality standards, if needed.

The principal health and atmospheric effects, as well as typical sources, of regulated pollutants are listed in Table 2-46. Additionally, the state and federal attainment status of those pollutants in the project area within the North Central Coast Air Basin are summarized in Table 2-47. The project area is classified as attainment or unclassifiable for all national ambient air quality standards. Unclassifiable generally indicates that there is a lack of representative data to classify a basin.

Table 2-46. State and Federal Criteria Air Pollutant Effects and Sources

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O ₃)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds and nitrogen oxides in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Carbon Monoxide (CO)	Carbon monoxide interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. Carbon monoxide also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. Carbon monoxide is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (10 micrometers or smaller) Particulate Matter (PM ₁₀)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM ₁₀ Particulate Matter (10 micrometers or smaller).	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Fine Particulate Matter (PM _{2.5} Particulate Matter (2.5 micrometers or smaller))	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the particulate matter (2.5 micrometers or smaller) _{2.5} size range. Many toxic and other aerosol and solid compounds are part of particulate matter(2.5 micrometers or smaller) _{2.5}	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning.
Nitrogen Dioxide (NO ₂)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO ₂)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Sulfates	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H ₂ S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility Reducing Particles (VRP)	Reduces visibility. Produces haze.	See particulate matter above. May be related more to aerosols than to solid particles.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes

Table 2-47. State and Federal Criteria Air Pollutant Standards and Project Area Attainment Status (CARB 2016).

Pollutant	State Project Attainment Status	Federal Project Area Attainment Status
ozone	Nonattainment	Attainment-Unclassified
Carbon monoxide	Unclassified	Attainment-Unclassified
Particulate Matter (10 micrometers or smaller) ^{vi}	Nonattainment	Unclassified
Particulate matter _{2.5}	Attainment	Attainment-Unclassified
Nitrogen Dioxide	Attainment	Attainment-Unclassified
Sulfur Dioxide	Attainment	Attainment-Unclassified
lead ^{xii}	Attainment	N/A
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Vinyl Chloride ^{xii}	N/A	N/A

Local Ambient Air Quality

The Monterey Bay Air Resources District operates a network of air monitoring stations throughout the North Central Coast Air Basin to monitor air pollutants. The nearest air monitoring station to the project is the Santa Cruz–Soquel Avenue Monitoring Station. This station is considered representative of conditions in the project vicinity because it experiences similar meteorological conditions. Data recorded at the station for the years 2016 to 2020 indicates that air quality in the vicinity of the station is relatively good, with only one violation of the 8-hour ozone standard recorded over the five-year period.

Sources of mobile source air toxic emissions in the project area include State Route 1 and surface streets. No mobile source air toxic monitoring sites were identified in the vicinity of the project. The nearest mobile source air toxic monitoring site is located in the city of San Jose, approximately 25 miles north of the project site. Mobile source air toxic concentrations in the city of San Jose would not be representative of the project area due to differences in traffic conditions, climate, meteorology, and topography.

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. The State Department of Conservation, in conjunction with the United States Geological Survey, has prepared a map and spreadsheet inventory of asbestos areas and areas known to contain serpentinite and ultramafic rocks. The project is not in an area containing naturally occurring asbestos.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. California Air Resources Board has identified the following typical groups who are most likely to be affected by air pollution: children under 14, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, child-care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

On the basis of research showing that the zone of greatest concern near roadways is within 500 feet (or 150 meters), sensitive receptors within 500 feet (or 150 meters) of the project have been identified and are documented in Table 2-48.

Table 2-48. Sensitive Receptors Located Within 500 feet of the Project Site

Receptor	Description	Distance Between Receptor and State Route 1 (ft)
Residences	Residences	Adjacent throughout
Seacliff Village Park	Park	230
Aptos Village County Park	Park	150
Tennis Club of Rio del Mar	Athletic Center	50
Valencia Elementary School	K-6 School	500

Environmental Consequences

Build Alternative

The following analysis is based on the project’s Air Quality Analysis Report (Terry A. Hayes Associates, Inc. 2022) unless cited otherwise. Direct impacts associated with air quality are primarily related to construction and highway operations. The emissions associated with construction and operation of the highway and trail are combined in the analysis below, and, except where noted, different trail configurations are not discussed separately in this section.

Regional Conformity

The project is located in an attainment/unclassified area for all current national ambient air quality standards (see Table 2-46). Therefore, transportation conformity requirements do not apply. No further analysis is required.

Project-Level Conformity

The project is located in an attainment/unclassified area for all current national ambient air quality standards. Therefore, transportation conformity requirements do not apply. No further analysis is required.

Additional Environmental Analysis

Operational Criteria Pollutant Emissions

Project operations would generate emissions of criteria air pollutants and precursors that could potentially affect regional air quality. Operational emissions take into account long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and Build Alternatives that would be generated by vehicle travel within the project limits along State Route 1. Regional operational emissions attributed to roadway vehicle travel with and without project implementation were calculated using EMFAC2017. EMFAC2017 is the most recent on-road emissions modeling tool in California that has been approved for use by the U.S. Environmental Protection Agency. EMFAC2017 contains a comprehensive emissions inventory of motor vehicles that provides estimated emission rates for air pollutants. The emission rates provided by EMFAC2017 in grams per mile were used in conjunction with information from the Traffic Operations Analysis Report prepared for the project in March 2021 (CDM Smith 2021), as well as analysis conducted for the Senate Bill 1 Trade Corridor Enhancement Program grant application support (CDM Smith 2022). The emissions analyses demonstrate slight reductions in tons emitted per day for all pollutants.

Table 2-49. Summary of Total Daily Comparative Emissions Analysis for Baseline Conditions (2019)

Scenario/Analysis Year	Particulate matter ^{2.5} (tons/day)	Particulate matter ¹⁰ (tons/day)	NO _x (tons/day)	Carbon monoxide (tons/day)	ROG (tons/day)
Baseline/Existing Conditions (2019)					
Existing Conditions	0.02	0.04	0.23	1.21	0.04
Existing Conditions + Build Alternative	0.02	0.04	0.23	1.22	0.04

Source: Terry A. Hayes Associates, Inc. 2022a

Table 2-50. Summary of Total Daily Comparative Emissions Analysis for the Opening Year (2025)

Scenario/Analysis Year	Particulate matter _{2.5} (tons/day)	Particulate matter ₁₀ (tons/day)	NO _x (tons/day)	Carbon monoxide (tons/day)	ROG (tons/day)
No-Build Alternative	0.12	0.28	0.65	7.63	1.03
Build Alternative	0.12	0.28	0.64	7.62	1.03

Source: CDM Smith 2022

Table 2-51. Summary of Total Daily Comparative Emissions Analysis for the Horizon Year (2045)

Scenario/Analysis Year	Particulate matter _{2.5} (tons/day)	Particulate matter ₁₀ (tons/day)	NO _x (tons/day)	Carbon monoxide (tons/day)	ROG (tons/day)
No-Build Alternative	0.12	0.30	0.30	4.91	0.50
Build Alternative	0.12	0.30	0.30	4.90	0.50

Source: CDM Smith 2022

Sensitive Receptors

Sensitive Receptors located within 500 feet of the project site include residences adjacent throughout the corridor, Seacliff Village Park, Aptos Village County Park, Tennis Club of Rio del Mar, and Valencia Elementary School.

Operational Mobile Source Air Toxics

Technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent the meaningful or reliable estimates of mobile source air toxic emissions and effects for this project. However, even though reliable methods do not exist to accurately estimate the health impacts of mobile source air toxic at the project level, it is possible to assess the levels of future mobile source air toxic emissions by comparing the project alternatives. The project’s potential air quality impacts related to long-term operations emissions of mobile source air toxic were evaluated in accordance with the Federal Highway Administration’s (2016) *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*.

According to the Federal Highway Administration (2016), this project is classified as a category 2 project (Projects with Low Potential mobile source air toxic Effects). The Build Alternative is expected to meet this category because annual average daily traffic from 2017 indicates that the existing annual average daily traffic on State Route 1 ranges between 87,600 and 101,000, which is well below the threshold for a project to qualify as having high potential mobile source air toxic effects.

For the Build Alternative, the amount of mobile source air toxins emitted would be proportional to vehicle miles traveled. As discussed above, the Build Alternative would reduce county-wide Vehicle Miles Traveled from the No-Build Alternative. In addition, the Build Alternative would reduce vehicle delay, increase average speed, and improve level of service, reducing mobile source air toxic emissions associated with vehicle idling. Furthermore, emissions will likely be lower than present levels in the design year as a result of the U.S. Environmental Protection Agency's national control programs that are projected to reduce annual mobile source air toxic emissions by over 90% between 2010 and 2050 (FHWA 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles traveled growth rates, and local control measures. However, the magnitude of the U.S. Environmental Protection Agency-projected reductions is so great (even after accounting for vehicle miles traveled growth) that mobile source air toxic emissions in the study area are likely to be lower in the future in nearly all cases.

The Bus-on-Shoulder component of the Build Alternative would move buses slightly closer to freeway-adjacent land uses. The shift from the center of the outside lane to the center of the shoulder would be approximately 12 feet. Fixed route bus transit service in Santa Cruz County is provided by the Santa Cruz Metropolitan Transit District (Santa Cruz Metro). Santa Cruz Metro is continuously upgrading its transit fleet to include new hybrid buses and zero-emission electric buses. Replacing and upgrading the existing fleet is a stated top priority for Metro. Low-emission buses like the hybrid diesel-electrics and compressed natural gas buses are a near-term alternative that allow transit operators to significantly reduce fuel emissions as the bus manufacturing industry develops electric buses with maximized operating range. California Air Resources Board has set a deadline of 2040 for all transit operators to transition to zero-emission electric fleets. It is not anticipated that the Bus-on-Shoulder component of the Build Alternative would significantly increase freeway-adjacent mobile source air toxic emissions.

Construction Criteria Pollutant Emissions

Project construction activities would generate emissions of criteria air pollutants and precursors that could potentially affect regional air quality. Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include Carbon monoxide, nitrogen oxides, volatile organic compounds, directly emitted Particulate matter 10 and Particulate matter 2.5, and air toxics such as diesel exhaust Particulate matter. Construction activities are expected to increase traffic congestion in

the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Under the transportation conformity regulations (40 Code of Federal Regulations 93.123(c)(5)), construction-related activities that cause temporary increases in emissions are not required in a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last 5 years or less at any individual site. They typically fall into two main categories:

- **Fugitive Dust**—A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code 41700–41701 prohibit visible emissions exceeding 3 minutes in 1 hour; this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line.

Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. Particulate matter 10 emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Particulate matter 10 emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

- **Construction Equipment Emissions:** Diesel exhaust particulate matter is a California-identified air toxic, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

Construction would occur over approximately 3 years (36 months). The Build Alternative is not located in an area that is federal nonattainment status for any criteria air pollutant. Construction emissions are not required to be estimated for transportation conformity. However, construction emissions have been estimated in accordance with CEQA requirements and for disclosure in the NEPA document. Construction emissions were estimated using the latest Roadway Construction Emissions Model (Version 9.0). While the model was developed for Sacramento conditions in terms of fleet emission factors, silt loading, and other model assumptions, it is considered adequate for estimating road construction emissions by the Monterey Bay Air Resources District.

Construction emissions were estimated using detailed equipment inventories, project construction scheduling information, and other input parameters provided by the engineering team. Daily construction-related emissions for the Build Alternative, including both the roadway and trail components, are presented in Table 2-52. The emissions presented are based on the best

information available at the time of calculations. The emissions represent the peak daily construction emissions that would be generated by the Build Alternative.

Table 2-52. Daily Construction Emissions for Roadway and Coastal Rail Trail Components (pounds/day)

Project Phases	Particulate matter ₁₀	Particulate matter _{2.5}	Carbon monoxide	Nitrogen Oxides	Carbon monoxide
Land Clearing/Grubbing	31	7.3	25	39	13,844
Grading/Excavation	32	7.7	34	51	15,944
Drainage/Utilities	31	6.9	19	18	4,945
Paving	1.1	0.69	16	28	11,406
Maximum Daily	32	7.7	34	51	15,944
Project Total (Tons)	11	2.5	10	14	4,437

The following measures, some of which may also be required for other purposes such as stormwater pollution control, will reduce air quality impacts resulting from construction activities. Although these measures are anticipated to reduce construction-related emissions, these reductions cannot be quantified at this time.

- The construction contractor shall comply with Caltrans' Standard Specifications in Section 14- 9 (2018).
 - Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
 - The construction contractor must comply with Monterey Bay Air Resources District rules, ordinances, and regulations in regard to air quality restrictions.
- The construction contractor shall apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.
- The construction contractor shall spread soil binder on any unpaved roads used for construction purposes and on all project construction parking areas.
- The construction contractor shall wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.
- The construction contractor shall properly tune and maintain construction equipment and vehicles.

- The construction contractor shall use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- The construction contractor shall develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- The construction contractor shall locate equipment and materials storage sites as far away from residential and park uses as practical. Construction areas shall be kept clean and orderly.
- All on- and off-road diesel equipment shall not idle for more than 5 minutes. The contractor shall post signs in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit. For non-diesel equipment, idling time for lane closure during construction shall be restricted to 10 minutes in each direction.
- The construction contractor shall use track-out reduction measures, such as gravel pads, at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- The construction contractor shall cover all transported loads of soils and wet materials prior to transport or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce Particulate matter 10 and deposition of particulate matter during transportation.
- The construction contractor shall remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter
- The construction contractor shall route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- The construction contractor shall install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

Construction Asbestos and Lead

Additional construction impacts related to air quality may include impacts from the handling of asbestos and/or soils with high concentrations of aerially deposited lead during construction and demolition. As discussed above, the project is not in an area containing NOA. Adherence to applicable Monterey Bay Air Resources District rules and Caltrans' Standard Specifications would ensure that asbestos-containing materials during demolition activities would be disposed of appropriately and safely, if found. Soils would be tested at the start of ground disturbance for the presence of hazardous materials such as lead. If lead is present, the project would be required to develop a lead compliance plan to minimize exposure per Monterey Bay Air Resources District rules and regulations. Refer to Section 2.2.5, *Hazardous*

Waste/Materials, for more information on the handling and disposal of these materials.

No-Build Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or Bus-on-Shoulder features on State Route 1 within the project area, and Coastal Rail Trail Segment 12 would not be constructed. The existing transportation facilities within the project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on State Route 1 and other segments of the Coastal Rail Trail. The No-Build Alternative would not directly generate any short-term construction emissions. It is anticipated that future emissions of criteria pollutants and mobile source air toxic would decrease relative to existing conditions because of improvements in engine technology and the phasing out of older, more polluting engines. Comparisons of criteria pollutant emissions of the No-Build Alternative to the Build Alternative are provided in Table 2-51.

Avoidance, Minimization, and/or Mitigation Measures

Construction (Short Term)

As stated in Chapter 1, Standard Measures AQ-1 through AQ-13 would be implemented to reduce environmental impacts. No avoidance, minimization, and/or mitigation measures have been identified as necessary to reduce emissions, though the Build Alternative would comply with Caltrans Standard Specifications and Monterey Bay Air Resources District rules and various regulations (Rules 207, 400, 402, 403, 416) to control emissions of air pollutants during construction.

Climate Change

Neither the U.S. Environmental Protection Agency nor the Federal Highway Administration has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. The Federal Highway Administration emphasizes resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the CEQA chapter (chapter 3) of this document. The CEQA analysis may be used to inform the NEPA determination for the project.

References

Association of Monterey Bay Area Governments. 2018. 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy. Seaside. CA. Final June.

California Air Resources Board. 2016. Ambient Air Quality Standards.

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CDM Smith. 2022. Senate Bill 1 Trade Corridor Enhancement Program Grant Application Support, Santa Cruz Highway 1 Multimodal Corridor Project, Countywide VMT & Emissions Reduction Benefits. March 2022.

Federal Highway Administration. 2016. Updated Interim guidance update on mobile source air toxic analysis in NEPA documents. Available: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/. Accessed: June 21, 2022.

Terry A. Hayes Associates, Inc. 2022a. *Air Quality Report, State Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements – Freedom Boulevard to State Park Drive – and Coastal Rail Trail Segment 12 Project*. Prepared for Caltrans District 5. February.

2.2.7 Noise

Regulatory Setting

CEQA and NEPA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/Title 23 Part 772 of the Code of Federal Regulations (23 Code of Federal Regulations 772) noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with Federal Highway Administration involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criteria for residences (67 A-weighted decibels) is lower than the noise abatement criteria for commercial areas (72 A-weighted decibels). The following table lists the noise abatement criteria for use in the NEPA/23 Code of Federal Regulations 772 analysis.

In the table below, undeveloped lands are permitted for the activity categories for B and C.

Table 2-53. Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, One-Hour A-Weighted Equivalent Continuous Sound Level	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Residential.
C	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No noise abatement criteria—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No noise abatement criteria—reporting only	Undeveloped lands that are not permitted.

Figure 2-21 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

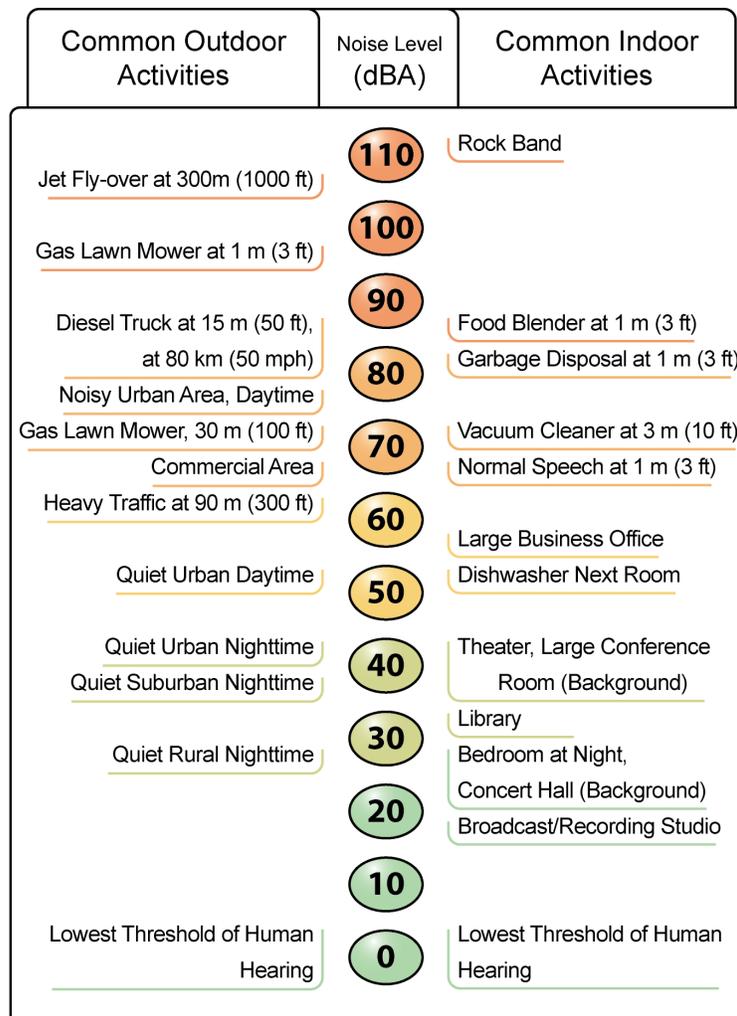


Figure 2-21. Noise Levels of Common Activities

According to Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, 2020*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 A-weighted decibel or more) or when the future noise level with the project approaches or exceeds the noise abatement criteria. A noise level is considered to approach the noise abatement criteria if it is within 1 A-weighted decibel of the noise abatement criteria.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 decibel at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: 1) the noise reduction design goal of 7 decibel at one or more impacted or non-impacted receptors; 2) the cost of noise abatement; and 3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

Affected Environment

The following analysis was prepared using information from the Focused Noise Study Report prepared for the project in June 2022 and the Focused Noise Abatement Decision Report prepared for the project in October 2022.

This Focused Noise Study Report evaluated the project's noise impacts and abatement under the requirements of 23 Code of Federal Regulations 772. The Focused Noise Study Report included a field investigation conducted in March 2021 and 2022 to identify land uses that could be subject to traffic and construction noise impacts from the proposed project.

The project area consists of single-family and multi-family residences (Activity Category B); churches, playgrounds, recreational sport areas (Activity Category C); churches and offices (Activity Category D); and office, restaurant, and hotel uses (Activity Category E).

Land uses along the State Route 1 project corridor are predominantly residential with pockets of commercial and recreational parcels. Traffic on State Route 1 is the dominant source of noise in the area. Existing land uses in the project corridor can be divided into six segments based upon major local interchanges, similar or like topographies, and separate or unique neighborhoods. The following describes neighborhoods in the seven analysis areas relevant to this project:

- Area 1: Area 1 is located in the southwest quadrant of the State Route 1/State Park Drive interchange. A residential subdivision (Activity Category B) and a church (Activity Category C) are located in this area. This area is generally flat, and backyards face the highway. An approximate 6-foot-high perimeter wall/fence surrounds the backyard and side yard areas of the residences.

- Area 2: Area 2 is located north of State Route 1 from the northwest quadrant of the State Route 1/State Park Drive interchange to the Soquel Drive/State Route 1 Santa Cruz Branch Line railroad overcrossing. A hotel (Activity Category E) and a large commercial retail development (Activity Category E) are located in this area. In general, the commercial retail area slopes upward in a southeast-northwest direction and is elevated above State Route 1. The hotel property is roughly at grade with State Route 1 or slightly higher than State Route 1. There are no sound barriers located between the highway and the commercial retail or hotel uses. One outdoor dining area is located at the commercial retail area and an outdoor pool area is centrally located at the hotel property.
- Area 3: Area 3 is located north of State Route 1 from the Soquel Drive/State Route 1 Santa Cruz Branch Line railroad overcrossing to the State Route 1/Rio Del Mar Boulevard interchange. Multi-family and single-family residential uses (Activity Category B), outdoor dining areas (Activity Category E), and commercial/office uses are located in this area. The commercial/office uses do not have outdoor areas of frequent human use; therefore, this area focuses on the residential uses and outdoor dining areas that would benefit from a lowered noise level. This area is generally flat with intervening vegetation between State Route 1 and the receptors along Soquel Drive.
- Area 4: Area 4 is located south of State Route 1 from the State Route 1/State Park Drive interchange to the Santa Cruz Branch Line railroad overcrossing. Single-family residential uses (Activity Category B) and a church (Activity Category C) are located in this area. This area is mostly flat with some varying topography in the residential hillside area east of Spreckels Drive. Intervening mature vegetation is located along State Route 1 between the highway and the uses to the south.
- Area 5: Area 5 is located south of State Route 1 from the Santa Cruz Branch Line railroad overcrossing to the State Route 1/Rio Del Mar Boulevard interchange. Single-family residential uses (Activity Category B), a tennis club (Activity Category C), and commercial retail development with outdoor dining areas (Activity Category E) are located in this area. This area is mostly flat along State Route 1 with some varying topography in the residential hillside area to the south. Intervening mature vegetation is located along State Route 1 between the highway and the uses to the south.
- Area 6: Area 6 is located south of State Route 1 from the State Route 1/Rio Del Mar Boulevard interchange to the State Route 1/Freedom Boulevard interchange. Single-family residential uses (Activity Category B) are located in this area. This area is mostly flat with some varying topography in the residential area to the south. Intervening mature vegetation is located along State Route 1 between the highway and the uses to the south.

- Area 7: Area 7 is located north of State Route 1 from the State Route 1/Rio Del Mar Boulevard interchange to the eastern project limits east of the State Route 1/Freedom Boulevard interchange. Multi-family and single-family residential uses (Activity Category B), a church (Activity Category C), and commercial/office uses are located in this area. Most of the commercial/office uses do not have outdoor areas of frequent human use; therefore, this area focuses on residential uses, an outdoor area at the church, and an outdoor area at the pet hospital that would benefit from a lowered noise level. This area is generally flat along State Route 1 and Soquel Drive with a noticeable increase in elevation north of Soquel Drive in the hillside residential areas.

Methodology

A field investigation was conducted in March 2021 and 2022 to identify the land uses near the project area and assess potential impacts from construction and traffic noise resulting from the project. Land uses in the project area were categorized by land-use type, activity category, and frequency of human use. Abatement is considered for areas of frequent human use that would benefit from the lowered noise level, so the noise impact analysis focused on locations where frequent human use would likely occur.

Noise measurements were mainly conducted in frequent outdoor human-use areas along the project corridor, primarily in residential backyards and common use areas at multi-family residences. Both short-term and long-term measurements were taken and included in the analysis conducted for the Focused Noise Study Report.

Future noise levels were modeled using the Federal Highway Administration Traffic Noise Model Version 2.5, which considers traffic volumes, speed, and vehicle type to determine traffic noise levels.

This modeling was used to determine areas that meet the criteria for traffic noise impacts and associated abatement. Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels are at least 12 A-weighted decibels greater than existing noise levels, or where predicted design-year noise levels approach or exceed the noise abatement criteria for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 Code of Federal Regulations 772 and the Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.

Environmental Consequences

This project is considered a Type 1 Project due to the addition of a new travel lane in each direction of State Route 1. As a Type 1 project, a noise analysis must be prepared for the project.

Build Alternative

The following analysis is based on the project’s Noise Study Report and Noise Abatement Decision Report (LSA Associates, Inc. 2022a, LSA Associates, Inc.2022b) unless cited otherwise. Direct impacts associated with noise are primarily related to construction and highway operations. The noise associated with construction and operation of the highway and trail are combined in the analysis below, and, except where noted, different trail configurations are not discussed separately in this section.

Construction Noise

During construction of the project, including the trail component, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, “Noise Control,” which states the following:

Do not exceed 86 A-weighted decibels highest time-weighted sound level at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 2-54 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. The same types of equipment would be used to construct the trail components. Construction equipment is expected to generate noise levels ranging from 70 to 90 decibels at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 decibels per doubling of distance.

Table 2-54. Construction Equipment Noise

Equipment	Maximum Noise Level (A-weighted decibels at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2018.

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Consequently, noise levels would not exceed the level allowable by Caltrans Standard Specifications Section 14.8-02 during nighttime hours. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise (Table 2-55).

Operational Noise

The Focused Noise Study Report studied future traffic noise impacts at receptors along the project corridor. Potential long-term noise impacts from the project are solely from traffic noise. A field investigation was conducted to identify land uses that could be subject to traffic noise impacts from the project. In the project area, single-family homes and multi-family residences are classified as Activity Category B land uses; churches, playgrounds, and recreational sport areas are classified as Activity Category C land uses; churches and offices are classified as Activity Category D land uses; and office, restaurants, and hotels are classified as Activity Category E land uses. As required by the Traffic Noise Analysis Protocol, noise abatement is only considered for areas of frequent human uses that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The Focused Noise Study Report evaluated traffic noise for the worst-case traffic condition, with 107 receptor locations evaluated for existing and future traffic noise.

Existing Noise Levels at Peak Traffic Hour

Table 2-55 shows the measured noise levels at each of the 107 receptor locations. Receptor locations were evaluated for the worst-case traffic scenario. In areas in which traffic becomes congested, the loudest hour is generally characterized by free-flowing traffic (i.e. level of service C or better) at the highway design speed, which is 65 miles per hour along State Route 1 within the project area (LSA Associates, Inc 2022a).

Future Noise Levels in Design Year (2045)

The Focused Noise Study Report modeled and evaluated future noise conditions to assess the project's impacts on noise. A project's design year is used for the evaluation of future impacts. The period typically used to establish a project's design year is 20 years from project completion. The Focused Noise Study Report used the year 2045 to assess noise conditions in the project's design year.

The modeled future noise levels with the project were compared to the modeled existing noise levels (after calibration) from Traffic Noise Model 2.5 to determine whether a substantial noise increase would occur as a result of the project. The modeled future noise levels were also compared to the noise abatement criteria to determine whether a traffic noise impact would occur. If

there is a substantial increase (12 A-weighted decibels) in noise with the project and/or if the noise approaches (within 1 A-weighted decibel) or exceeds the noise abatement criteria, then there is a noise impact that requires consideration of noise abatement. Table 2-55 shows the projected future noise levels at each receptor site with and without the project.

The Focused Noise Study Report found that 53 out of the 107 total receptor sites are expected to experience an increase in traffic noise that would approach or exceed the noise abatement criteria. However, none of the 107 receptor sites would experience an increase in noise that exceeds 12 A-weighted decibels or more over its corresponding modeled existing noise level.

Based on the findings of the Focused Noise Study Report, noise abatement was considered for affected receptor sites. Noise abatement would be in the form of sound barriers installed along the project corridor. Table 2-55 also includes projected future noise levels with sound barriers of five distinct heights ranging from 8 feet to 16 feet. Figures 2-22a through 2-22e show the locations of the feasible noise barriers that were analyzed in the Focused Noise Abatement Decisions report. Proposed noise abatement is discussed further in the avoidance, minimization, and/or abatement measures section below.

A total of 8 noise barriers were evaluated in the Focused Noise Study Report. However, based on the findings of the Focused Noise Abatement Decision Report, only two noise barriers were found to be reasonable and feasible and are proposed to be built as part of the project. The FHWA protocol for reasonableness considers noise abatement to be feasible if it provides a noise reduction of 5dBA or more at receptors subject to noise impacts. It is considered reasonable if a reduction of 7dBA or more is achieved at one or more benefited receptors, and if the cost does not exceed the cost allowance. These noise barriers, which range in height from 8 feet to 16 feet depending on site-specific noise impacts from the project, would provide noise reduction meeting the noise reduction design goal of at least 7 A-weighted decibels at 28 of the 53 receptors expected to experience an increase in traffic noise as a result of the project's implementation that approaches or exceeds the noise abatement criteria. The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This reasonable allowance is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance, the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

The Focused Noise Study Report determined that eight of the 107 receptor sites would experience an increase in noise that exceeds the noise abatement criteria but cannot be abated reasonably and feasibly by the

installation of sound barriers. These receptors— 4-4, 4-12, 4-14, 4-17, 6-22, 6-23, 6-24, and 7-1 —represent 17 single-family and 10 multi-family residential units.

As shown in Table 2-55, noise abatement would result in a reduction of at least 5 decibels at most receptors.

Table 2-55. Noise Survey Report Results Summary

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
2-1	None	52	53	54	No	None	None	None	None	None	None
2-2	None	57	58	60	No	None	None	None	None	None	None
2-3	None	60	61	63	No	None	None	None	None	None	None
2-4	None	60	60	60	No	None	None	None	None	None	None
3-1	S90	67	68	69	Yes	65	64	62	61	61	Feasible
3-2	S90	76	76	77	Yes	74	73	71	69	68	Feasible
3-3	S90	66	66	67	Yes	62	61	60	59	58	Feasible
3-4	S90	66	66	64	No	61	60	60	59	59	Feasible
3-5	S90	59	60	60	No	56	54	53	52	51	Feasible
3-6	S90	64	64	66	No	65	64	63	62	61	Feasible
3-7	S90	68	68	70	Yes	69	68	67	66	65	Feasible
3-8	S90	69	69	72	Yes	71	70	69	69	68	Feasible
3-9	S86a	73	73	75	Yes	67	67	66	66	65	Feasible
3-10	S86a	70	70	72	Yes	66	65	64	64	63	Feasible
3-11	S86a	75	75	77	Yes	67	65	64	63	63	Feasible
3-12	S86a	57	58	59	No	59	59	59	59	59	Feasible
3-12b	S86a	60	61	62	No	62	62	62	62	61	Feasible
3-13	S86b	70	70	72	Yes	69	69	69	69	69	Abatement Not Required
3-14	None	65	65	67	No	None	None	None	None	None	None
3-15	None	64	65	65	No	None	None	None	None	None	None
3-16	None	62	63	63	No	None	None	None	None	None	None
3-17	None	60	60	61	No	None	None	None	None	None	None

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
3-18	None	60	60	60	No	None	None	None	None	None	None
4-1	None	56	56	57	No	None	None	None	None	None	None
4-2	None	53	54	55	No	None	None	None	None	None	None
4-3	None	55	56	57	No	None	None	None	None	None	None
4-4	S93	65	65	67	Yes	66	66	66	66	66	No Feasible Abatement
4-5	S93	50	51	52	No	51	51	50	50	50	No Feasible Abatement
4-5b	S93	55	56	57	No	56	55	55	55	55	No Feasible Abatement
4-6	S93	56	56	58	No	57	57	57	57	57	No Feasible Abatement
4-7	S93	60	61	62	No	61	61	61	60	60	No Feasible Abatement
4-8	S93	47	48	49	No	48	47	46	46	46	No Feasible Abatement
4-8b	S93	52	52	54	No	53	52	52	51	51	No Feasible Abatement
4-9	S93	48	48	50	No	49	48	47	47	47	No Feasible Abatement
4-9b	S93	53	53	55	No	53	53	52	52	52	No Feasible Abatement
4-10	S93	59	60	61	No	57	57	57	57	56	No Feasible Abatement
4-10b	S93	64	64	66	Yes	62	61	60	59	58	No Feasible Abatement
4-11	S93	63	63	65	No	62	62	62	62	61	No Feasible Abatement

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
4-12	S93	65	65	66	Yes	64	63	63	63	63	No Feasible Abatement
4-13	S93	60	61	63	No	59	59	58	58	58	No Feasible Abatement
4-14	S93	64	65	67	Yes	65	65	64	64	64	No Feasible Abatement
4-15	S93	60	60	62	No	59	58	58	57	57	No Feasible Abatement
4-16	S93	47	47	48	No	46	46	45	45	45	No Feasible Abatement
4-17	S93	69	69	72	Yes	72	72	72	72	72	No Feasible Abatement
4-18	S89	66	67	67	Yes	63	62	61	61	60	Feasible
4-19	S89	61	62	62	No	57	57	56	56	55	Feasible
4-20	S89	62	63	63	No	57	56	55	55	54	Feasible
4-21	S89	64	64	65	No	58	58	57	56	56	Feasible
4-22	S89	66	67	69	Yes	59	59	58	58	57	Feasible
4-23	S89	66	66	67	Yes	60	59	58	58	57	Feasible
4-24	S87	73	73	77	Yes	77	77	77	77	77	No
4-25	S87	71	71	74	Yes	72	70	69	67	66	No
4-26	S87	76	76	78	Yes	70	68	67	66	65	No
4-27	S87	76	76	79	Yes	69	67	65	64	63	No
5-1	None	62	62	65	No	None	None	None	None	None	None
5-2	SB-1	67	67	69	Yes	64	63	63	63	63	Exceeds Cost Allowance
5-3	None	64	64	65	No	None	None	None	None	None	None

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
5-4	None	62	62	64	No	None	None	None	None	None	None
5-5	None	62	62	63	No	None	None	None	None	None	None
6-1	None	54	54	54	No	54	54	54	54	54	None
6-2	None	60	60	61	No	61	60	60	60	60	None
6-3	S71	67	67	68	Yes	68	67	66	65	64	Exceeds Cost Allowance
6-4	S71	72	72	73	Yes	73	73	73	73	72	Exceeds Cost Allowance
6-5	S71	68	69	70	Yes	67	65	64	62	61	Exceeds Cost Allowance
6-6	S71	66	67	68	Yes	65	63	62	60	59	Exceeds Cost Allowance
6-7	S71	66	66	68	Yes	65	63	62	60	59	Exceeds Cost Allowance
6-8	S71	68	69	70	Yes	69	69	67	66	64	Exceeds Cost Allowance
6-9	S71	65	66	68	Yes	64	63	61	60	58	Exceeds Cost Allowance
6-10	S71	69	70	72	Yes	68	66	65	63	62	Exceeds Cost Allowance
6-11	S71	69	69	72	Yes	68	66	65	63	62	Exceeds Cost Allowance
6-12	S71	66	67	70	Yes	64	63	61	60	59	Exceeds Cost Allowance
6-13	S71	66	67	69	Yes	65	63	62	60	59	Exceeds Cost Allowance
6-14	S71	67	68	70	Yes	67	65	64	62	61	Exceeds Cost Allowance

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
6-15	S71	61	62	64	No	62	60	59	58	57	Exceeds Cost Allowance
6-16	S71	68	68	70	Yes	70	69	68	66	64	Exceeds Cost Allowance
6-17	S71	59	59	61	No	60	59	57	56	56	Exceeds Cost Allowance
6-18	S71	61	61	63	No	62	61	60	59	58	Exceeds Cost Allowance
6-19	None	60	60	62	No	62	61	60	59	59	None
6-20	None	56	57	58	No	58	57	57	57	56	None
6-21	None	56	57	58	No	58	57	57	57	56	None
6-22	None	62	62	64	No	64	64	63	63	62	None
6-23	SB-2	65	66	66	Yes	66	66	66	66	66	No Feasible Abatement
6-24	SB-2	66	67	67	Yes	67	67	67	67	67	No Feasible Abatement
6-25	SB-2	71	72	73	Yes	73	73	73	73	73	No Feasible Abatement
6-26	SB-2	71	71	72	Yes	72	71	70	70	69	No Feasible Abatement
7-1	S74	73	73	74	Yes	74	73	73	72	72	No Feasible Abatement
7-2	S68	71	72	74	Yes	74	74	74	73	73	Exceeds Cost Allowance
7-3	S68	69	69	71	Yes	71	70	70	69	69	Exceeds Cost Allowance
7-4	S68	67	67	69	Yes	67	66	64	62	62	Exceeds Cost Allowance

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
7-5	S68	52	53	55	No	53	52	51	49	49	Exceeds Cost Allowance
7-6	S68	65	65	67	Yes	67	67	67	66	66	Exceeds Cost Allowance
7-7	S68	52	52	54	No	53	53	52	50	50	Exceeds Cost Allowance
7-8	S68	50	50	52	No	51	51	51	50	50	Exceeds Cost Allowance
7-9	S68	64	64	67	Yes	60	59	58	57	57	Exceeds Cost Allowance
7-10	S68	68	69	70	Yes	70	69	68	68	68	Exceeds Cost Allowance
7-11	S68	70	70	71	Yes	68	66	65	64	64	Exceeds Cost Allowance
7-12	S68	68	69	70	Yes	68	66	64	64	64	Exceeds Cost Allowance
7-13	S68	68	68	69	Yes	65	64	62	61	61	Exceeds Cost Allowance
7-14	S68	66	67	68	Yes	65	63	62	61	61	Exceeds Cost Allowance
7-15	S68	70	70	71	Yes	66	64	63	62	62	Exceeds Cost Allowance
7-16	S68	70	71	71	Yes	71	71	71	70	70	Exceeds Cost Allowance
7-17	S68	66	67	67	Yes	67	67	67	66	66	Exceeds Cost Allowance
7-18	None	58	58	59	No	None	None	None	None	None	None

Receptor Number	Noise Barrier Number	Existing Noise Level, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level Without Project, equivalent continuous sound level per hour in A-weighted decibels	Future Noise Level With Project, equivalent continuous sound level per hour in A-weighted decibels	Noise Impact Requiring Abatement Consideration?	Predicted Noise Level with Abatement (A-weighted decibels) 8-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 10-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 12-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 14-Foot Barrier	Predicted Noise Level with Abatement (A-weighted decibels) 16-Foot Barrier	Reasonable & Feasible?
7-19	None	51	52	52	No	None	None	None	None	None	None
7-20	None	61	62	62	No	None	None	None	None	None	None
7-21	None	64	65	66	No	None	None	None	None	None	None
7-22	None	65	66	65	No	None	None	None	None	None	None

Optional First Phase and Ultimate Trail Configuration

The proposed trail (both the optional first phase and ultimate trail condition) is passive in nature. No motorized vehicles or noise generating sources are proposed to operate on the trail other than pedestrian activities and bicycles. Users of the proposed trail are not expected to generate excessive noise and are assumed to continuously move, and therefore, would not generate noise at a specific location for an extended period of time. Furthermore, should a user of the trail generate excessive noise, those potential impacts would be considered a nuisance noise and would be assessed and handled under the local jurisdiction's municipal code. Due to the lack of noise sources added, operations of the proposed trail are not expected to contribute to the overall noise environment of surrounding uses on a regular basis.

No-Build Alternative

No construction would take place under the No-Build Alternative; therefore, there would be no noise effects related to the project resulting from traffic or construction.

Avoidance, Minimization, and/or Abatement Measures

Construction

During construction of the Build Alternative, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans' provisions in Section 14-8.02, "Noise Control," of the 2018 Standard Specifications. The provision establishes that noise not exceed 86 A-weighted decibels at a distance of 50 feet from the job site between the hours of 9:00 p.m. and 6:00 a.m. Additionally, the contractor will equip all internal combustion engines with manufacturer-recommended mufflers and will not operate internal combustion engines on the job site without the appropriate muffler. As such, no impacts are anticipated.

Operation

For modeled locations that were found to approach or exceed the representative noise abatement criteria, Traffic Noise Model 2.5 was used to model noise barriers and determine the insertion loss (noise reduction) provided. Eight noise barriers were analyzed, with heights ranging from 8 to 16 feet, to determine feasible noise abatement for the build alternatives. Of the eight barriers analyzed, two were determined to be reasonable and feasible. For all reasonable barriers that were found to meet the design goal and where the cost to construct the barrier did not exceed the reasonableness allowance, polling of the benefitted receptors would be required. Polling of the benefitted receptors will occur during the permitting phase and may result in a barrier not being reasonable if the benefitted

receptors decline to vote or vote against the abatement (51 percent of the owners and/or non-owner occupants voting against the proposed abatement).

Based on the studies completed to date, Caltrans considered the following noise abatement measures, and intends to incorporate noise abatement in the form of the noise barriers that were found to be both feasible and reasonable:

Area 3

Traffic noise levels at residences and restaurants in Area 3 are predicted to be in the range of 60 to 77 A-weighted decibels Leq(h) in the design-year. The change in noise between existing conditions and the design-year is predicted to range from negative 2 (a 2 decibel decrease) to 3 decibel increase. Because the predicted noise levels in the design-year approach or exceed the noise abatement criterion for residential uses (67 A-weighted decibels Leq[h], noise abatement criteria category B) at nine modeled receptors, consideration of noise abatement is required. Therefore, two barrier configurations were analyzed to determine if feasible abatement could be provided at the affected receivers.

Noise Barrier Number S86a

This barrier was evaluated in two-foot increments from eight through 16 feet in height. The calculated noise reductions and are summarized in Table 2-55 by barrier height. The analysis of Noise Barrier Number S86a found that barrier heights of 8- to 16-feet would be feasible and meet the design goal (i.e., 7 decibel insertion loss) at ten benefitted receivers. Additionally, inclusion of this barrier would require the removal of mature trees, which would require consideration of replacement planting within Caltrans right-of-way or potentially offsite.

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of (a) barrier(s) at: the right-of-way of State Route 1 on the northbound side, with a respective length of 606 feet and average heights 8- to 16-feet. Calculations based on preliminary design data show that the barrier(s) will reduce noise levels by 10 to 14 A-weighted decibels for 10 residences at a cost of \$514,169 to \$756,569. These measures may change based on input received from the public. If conditions have substantially changed during final design, noise abatement may not be constructed. The final decision on noise abatement will be made upon completion of the project design.

Area 4

Traffic noise levels at residences and religious (church) uses in Area 4 are predicted to be in the range of 48 to 79 A-weighted decibels Leq(h) in the design-year. The increase in noise between existing conditions and the design-year is predicted to be 1 to 4 decibels. Because the predicted noise

levels in the design-year approach or exceed the noise abatement criterion for residential uses (67 A-weighted decibels Leq[h], noise abatement criteria category B) at 12 modeled receptors, consideration of noise abatement is required. Therefore, three barrier configurations were analyzed to determine if feasible abatement could be provided at the affected receivers, and Barrier Number S89 was determined to be reasonable and feasible.

Noise Barrier Number S89

Noise Barrier Number S89 was evaluated in two-foot increments from eight through 16 feet in height. The calculated noise reductions and reasonable allowances are summarized in Table 2-55 by barrier height. The analysis of Noise Barrier Number S89 found that a barrier height of 8 feet would be feasible and meet the design goal (i.e., 7 decibels insertion loss) at nine benefitted receptors, and barrier heights of 10- to 16-feet would be feasible and meet the design goal at 10 benefitted receivers. Additionally, inclusion of this barrier would widen Aptos Creek Bridge, potentially changing the visual character of the freeway in this area where it crosses Aptos Creek.

Based on the studies completed to date and input from the public, Caltrans intends to incorporate noise abatement in the form of (a) barrier(s) at: the shoulder of State Route 1 on the southbound side, with a respective length of 885 feet and average heights of 8- to 16-feet. Calculations based on preliminary design data show that the barrier(s) will reduce noise levels by 10 to 11 A-weighted decibels for 9 to 10 residences at a cost of \$776,400 to \$1,130,400. If conditions have substantially changed during final design, noise abatement may not be constructed. The final decision on noise abatement will be made upon completion of the project design.

References

California Department of Transportation, Division of Environmental Analysis. 2020. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. April.

LSA Associates, Inc. 2022a. Focused Noise Study Report for the State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project. June.

LSA Associates, Inc. 2022b. Focused Noise Abatement Decision Report for the State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project. October.



LSA

LEGEND

Receptor Areas	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7
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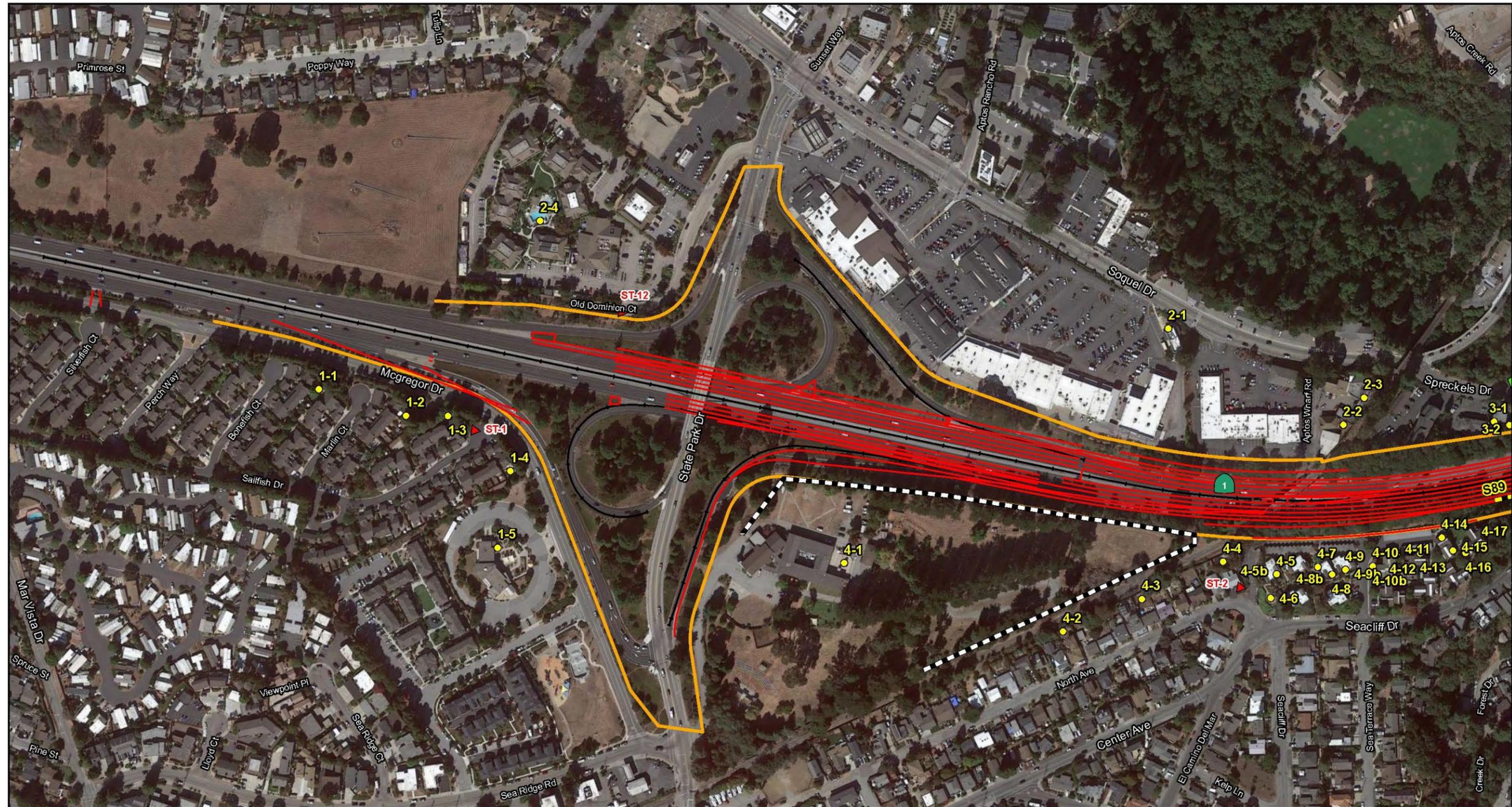
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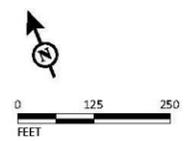
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State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements
Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
Receptor Areas

Figure 2-22a. Noise Barrier and Receptor Locations, Sheet 1 of 5

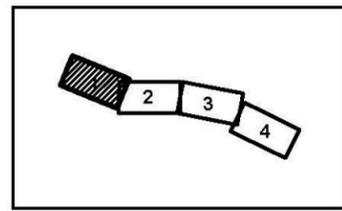


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SOURCE: Google (2022), CAD Data (3/7/2022)
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- LEGEND**
- Modeled Receptors
 - ▲ Short-Term Monitoring Locations
 - Long-Term Monitoring Locations
 - Existing Noise Barrier
 - ▬ Modeled Sound Barrier
 - Right-of-Way
 - Proposed Geometrics
 - Roadway
 - Centerline



State Highway Route 1 Auxiliary Lanes and Bus-on Shoulder Improvements
 Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
 Modeled Noise Barriers and Receptor Locations

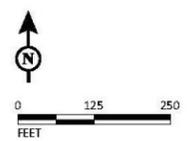
Figure 2-22b. Noise Barrier and Receptor Locations, Sheet 2 of 5



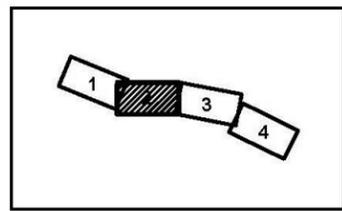
LSA

LEGEND

- Modeled Receptors
- ▲ Short-Term Monitoring Locations
- Long-Term Monitoring Locations
- ▬ Existing Noise Barrier
- ▬ Modeled Sound Barrier
- Right-of-Way
- ▬ Proposed Geometrics
- ▬ Roadway
- ▬ Centerline

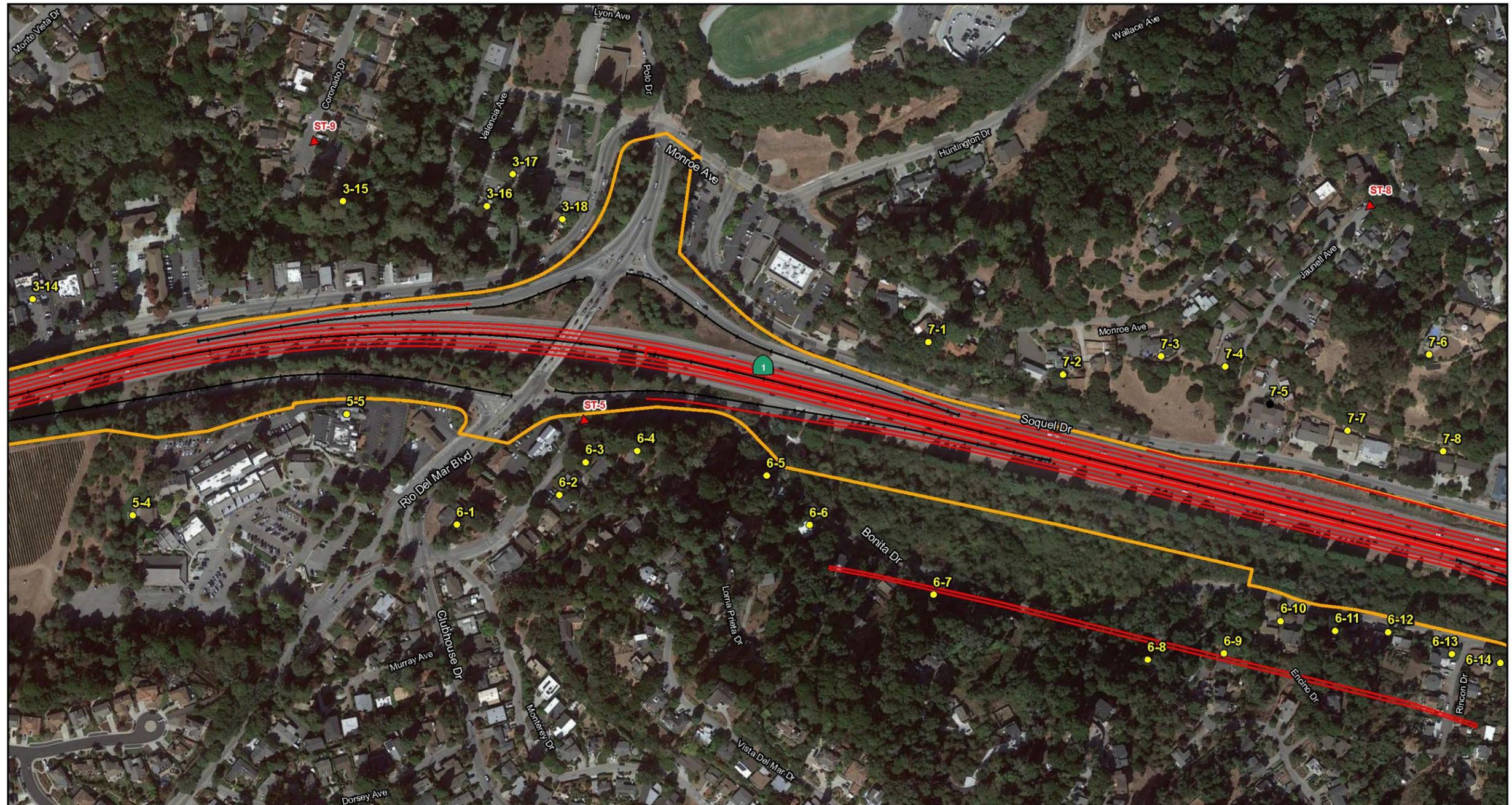


SOURCE: Google (2022), CAD Data (3/7/2022)
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State Highway Route 1 Auxiliary Lanes and Bus-on Shoulder Improvements
 Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
 Modeled Noise Barriers and Receptor Locations

Figure 2-22c. Noise Barrier and Receptor Locations, Sheet 3 or 5



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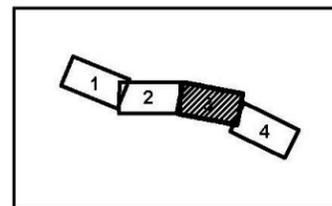


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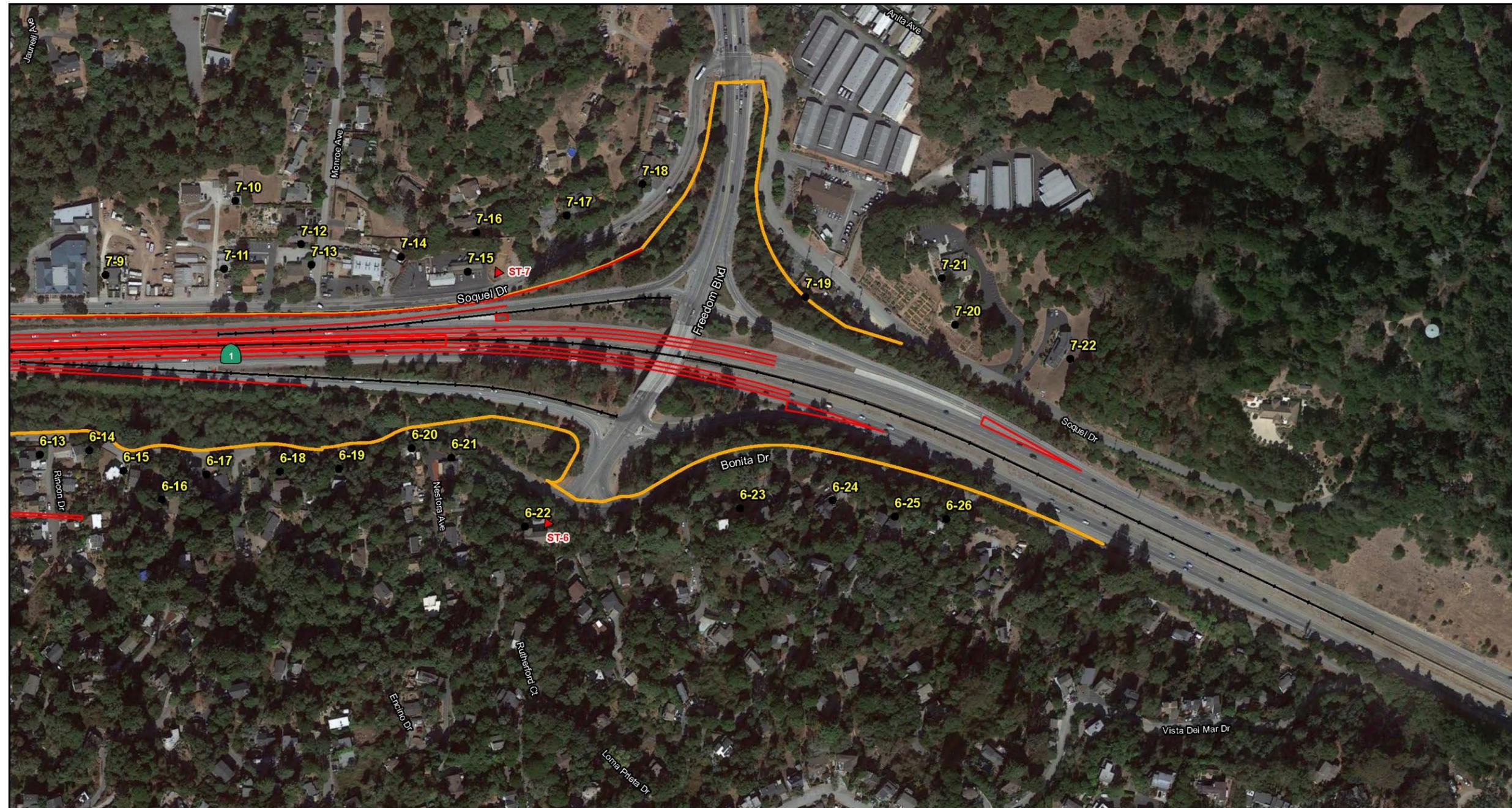
LEGEND

- Modeled Receptors
- ▲ Short-Term Monitoring Locations
- Long-Term Monitoring Locations
- Existing Noise Barrier
- - - Modeled Sound Barrier
- Right-of-Way
- Proposed Geometrics
- Roadway
- Centerline

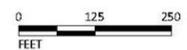


State Highway Route 1 Auxiliary Lanes and Bus-on Shoulder Improvements
Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
Modeled Noise Barriers and Receptor Locations

Figure 2-22d. Noise Barrier and Receptor Locations, Sheet 4 of 5

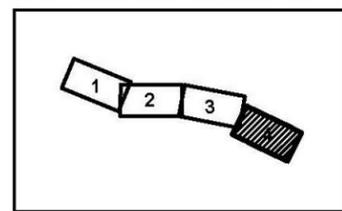


LSA



SOURCE: Google (2022), CAD Data (3/7/2022)
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- LEGEND**
- Modeled Receptors
 - ▲ Short-Term Monitoring Locations
 - Long-Term Monitoring Locations
 - Existing Noise Barrier
 - ▬ Modeled Sound Barrier
 - Right-of-Way
 - Proposed Geometrics
 - Roadway
 - Centerline



State Highway Route 1 Auxiliary Lanes and Bus-on Shoulder Improvements
 Freedom Boulevard to State Park Drive and Coastal Rail Trail Segment 12 Project
 Modeled Noise Barriers and Receptor Locations

Figure 2-22e. Noise Barrier and Receptor Locations, Sheet 5 of 5

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2.2.8 Energy

Regulatory Setting

Federal

NEPA (42 United States Code [U.S. Code] 4332) requires the identification of all potentially significant impacts on the environment, including energy impacts.

State

The CEQA Guidelines Section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

The state has passed several bills directing state agencies and entities such as the California Energy Commission and the California Public Utilities Commission to implement renewable energy portfolio targets and energy efficiency measures to reduce energy consumption and greenhouse gas emissions. The California Energy Commission is the state's primary energy policy and planning agency. Created by the legislature in 1974, the California Energy Commission has five major responsibilities: (1) forecasting future energy needs and keeping historical energy data, (2) licensing thermal power plants 50 megawatts or larger, (3) promoting energy efficiency through appliance and building standards, (4) developing energy technologies and supporting renewable energy, and (5) planning for and directing the state's response to energy emergencies. Senate Bill 1389 (Chapter 568, Statutes of 2002) requires the California Energy Commission to prepare a biennial integrated energy policy report assessing major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors. The report also provides policy recommendations to conserve resources, protect the environment, and ensure reliable, secure, and diverse energy supplies.

The California Transportation Plan is a statewide, long-range transportation plan to meet future mobility needs. It defines performance-based goals, policies, and strategies to achieve an integrated, multimodal transportation system. The California Transportation Plan addresses how the state will achieve maximum feasible emissions reductions, taking into consideration the use of alternative fuels, new vehicle technology and tailpipe emissions reductions. Caltrans must consult and coordinate with related state agencies, air quality management districts, public transit operators, and regional transportation planning agencies.

Regional

The Association of Monterey Bay Area Governments is the designated metropolitan planning organization for Monterey, Santa Cruz, and San Benito Counties and their respective cities. The 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy includes a comprehensive discussion of regional energy policies and use. Association of Monterey Bay Area Governments has taken steps to assess what regional infrastructure is needed to accommodate more alternative fuel choices across the region. In 2012, Association of Monterey Bay Area Governments adopted the Electric Vehicle Infrastructure for the Monterey Bay Area Plan. This plan presents a siting prioritization method to help identify potential charging locations and presents a framework for establishing a robust electric vehicle charging network in the region. The siting analysis in the plan provides guidance to local and regional stakeholders based on potential demand for electric vehicle charging stations.

In 2013, Association of Monterey Bay Area Governments and other regional organizations completed the Monterey Bay Plug-In Electric Vehicle Readiness Plan. The goal of this plan is to encourage the mass adoption of plug-in electric vehicles in the region and reduce greenhouse gas emissions by providing a toolbox of recommended approaches for public, private, and nonprofit organizations. These tools range from innovative approaches to plug-in electric vehicle marketing and streamlining electric vehicle supply equipment permitting, to guidelines on establishing an electric vehicle fleet. The Readiness Plan identifies specific regional targets for significantly expanding plug-in electric vehicle adoption in the Monterey Bay area by 2015, 2020, and 2025. Association of Monterey Bay Area Governments and other transportation partners continue to work with local jurisdictions and other organizations to implement charging stations and increase adoption of electric vehicles around the region.

Within the Monterey Bay area, the 21 local governments are committed to energy efficiency and climate planning and are working in collaboration with other local governments and their communities. It was through this shared vision of maximizing energy as a resource that the Association of Monterey Bay Area Governments Energy Watch program was developed in 2006. The Association of Monterey Bay Area Governments Energy Watch programs are designed in two major categories. The first category is implementation programs. These programs achieve direct and measurable energy efficiency targets through the installation of energy-efficient equipment. These programs have been developed to serve the diverse stakeholders in the region including residents, municipalities, special districts, nonprofit organizations, agriculture, school districts, and hospitality businesses. The second category of programs is in the area of climate planning support for jurisdictions. The Association of Monterey Bay Area Governments Energy Watch program worked collaboratively with staff from each of the 21 Association of Monterey Bay Area Governments jurisdictions to complete each jurisdiction's 2005

municipal and community-wide greenhouse gas inventory, as well as their 2009 and 2010 communitywide greenhouse gas inventory updates. This data was used in the creation of a draft community-wide Energy Action Strategy developed for each of the jurisdictions, which in some cases were incorporated into their Climate Action Plans.

The County of Santa Cruz Climate Action Strategy (County of Santa Cruz 2013) identifies various strategies to reduce the impact of vehicle miles traveled, transportation greenhouse gas emissions, and energy use. These strategies include increasing traffic efficiency and encouraging the use of alternative transportation modes.

The Sustainable Santa Cruz County Plan (County of Santa Cruz 2014) describes a vision, guiding principles, and strategies for enhancing the sustainability of development patterns in Santa Cruz County, with a time horizon through 2035. The plan envisions safe, reliable, and efficient transportation choices that include transit, bicycling, walking, and carpooling; and it also proposes new development designed to minimize per capita consumption of resources such as water and energy.

Affected Environment

An Energy Analysis Report was prepared for the project by Caltrans in July 2022 (Terry A. Hayes Associates, Inc. 2022b).

The California Energy Commission reports combined nonresidential and residential energy consumption in terms of electricity and gas. The County of Santa Cruz in 2018 (the most recent year for which data are available) consumed a total of 1,212.27 gigawatt-hours—1 gigawatt-hour equals 1 million kilowatt-hours—of electricity. Countywide natural gas consumption in 2018 amounted to 51.87 million therms (California Energy Commission 2020).

Direct energy consumption by the transportation sector, however, is not included in these totals even though the majority of energy consumed is from transportation fuels. The U.S. Census Bureau estimates that the Santa Cruz County population was approximately 274,255 in 2019. The existing population is heavily dependent on automobile travel due to the suburban development throughout most of the county. The majority of energy consumed is from transportation fuels. The California Air Resources Board Mobile Source Emissions Inventory (MSEI) EMFAC2017 web database estimates that the 2019 annual vehicle miles traveled in Santa Cruz County was approximately 1,977,948,655 miles (Caltrans 2022).

In the project corridor, baseline year (2019) annual vehicle miles traveled was 250,908,760 with 96% non-trucks and 4% trucks. This results in an annual fuel consumption of approximately 9,440,052 gallons per year of gasoline and 776,551 gallons per year of diesel fuel. Existing traffic management systems include metered ramps and changeable message boards. Standard Caltrans

lighting is provided at on- and off-ramps, but there is no existing lighting between the interchanges. The Build Alternative does not include substantial light replacement or upgrades that would significantly change existing energy use. The existing pavement surface is considered to be in good condition, which contributes to energy efficiencies (Terry A. Hayes Associates, Inc. 2022b).

By 2045, the project would decrease annual gasoline and diesel fuel consumption by approximately 109,732 gallons per year and 1,932 gallons per year, respectively, relative to the No-Build Alternative. The Mobile Source Emissions Inventory estimates that Santa Cruz County vehicle travel will consume approximately 54,803,966 gallons of gasoline and 7,678,675 gallons of diesel fuel in 2045. The reduction in annual fuel consumption spurred by the project would represent decreases of approximately 0.2% for countywide gasoline consumption and 0.03% for countywide diesel consumption in the design year of 2045 (Caltrans 2022).

Energy efficiency efforts in California have dramatically reduced statewide per capita energy consumption relative to historical averages. California's per capita energy use is the third lowest in the nation, partially attributable to the state's continuous pursuit of policies to reduce energy consumption, promote renewable energy, and reduce reliance on fossil fuels. California's net taxable gasoline sales in 2016 were below 2002 levels, despite population growth of at least 15% during the same time period. Furthermore, gasoline consumption in California decreased by about 2.2% between 2005 and 2017, even as vehicle miles traveled increased by 7.5%, from 329 billion in 2005 to 354 billion in 2017. These improvements are due in large part to a more fuel-efficient vehicle fleet. It is anticipated that Corporate Average Fuel Economy regulations, renewable fuel uptake, and zero-emission vehicle regulations will gradually displace gasoline-propulsion systems in favor of more energy-efficient systems with lower greenhouse gas emissions. As of 2014, renewable fuels represented a growing fraction of transportation energy consumption at 6.2%, with ethanol representing 4.5% and other renewables representing 1.7% of total transportation energy consumption (Caltrans 2022).

Environmental Consequences

Build Alternative

The following analysis is based on the project's Energy Analysis Report (Caltrans 2022) unless cited otherwise. Direct impacts associated with energy are primarily related to construction and highway operations. The energy consumption associated with construction and operation of the highway and trail are combined in the analysis below, and, except where noted, different trail configurations are not discussed separately in this section.

Construction

Construction energy effects involve the one-time, non-recoverable energy costs associated with construction of roadways and structures. Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on energy from most highway projects would be greatest during the site preparation and concrete paving phases because the excavation, handling, and transport of materials requires equipment and truck fuels. It is unlikely that all pieces of equipment would operate every day during the phased construction work.

The fuel consumption was estimated from the equipment and vehicles that would be employed in construction activities. Diesel engines are installed in heavy-duty off-road construction equipment and on-road haul trucks. Gasoline engines are typically found in passenger vehicles that would be used for construction worker daily commutes. Table 2-56 presents the direct, one-time expenditure of fuel consumption associated with construction activities, including both the roadway and Coastal Rail Trail components. Construction would require approximately 377,602.8 gallons of diesel and 23,320.2 gallons of gasoline over a 3-year period. Annual average consumption of petroleum fuels during construction activities would be approximately 125,867.6 gallons of diesel fuel and 7,773.4 gallons of gasoline per year.

Table 2-56. Construction Fuel Consumption

Construction Phase	Duration (Months)	Diesel	Gasoline
Grubbing/Land Clearing	3.6	47,598	1,295
Grading/Excavation	14.4	214,518	11,487
Drainage/Utilities/Sub-Grade	12.6	54,727	7,174
Paving	5.4	57,987	2,572
Total	36.0	374,829	22,528

While construction would result in a short-term increase in energy use, construction best available control technologies would help conserve energy. Construction activities are expected to increase traffic congestion in the area during the 36-month construction period, resulting in intermittent and temporary increases in traffic delays (see Section 2.1.7, *Traffic and Transportation/Pedestrian and Bicycle Facilities*). Caltrans' Standard Specifications restrict idling time for lane closure during construction to 10 minutes in each direction. Additionally, the construction contractor must comply with the California Code of Regulations Title 13, Section 2449(d)(3), which restricts the idling of construction vehicles to no longer than 5 consecutive minutes. Furthermore, Standard Measure TR-1, which requires a Transportation Management Plan, would minimize delays during construction

that would result in inefficient energy (fuel) consumption. See Section 2.1.7 for details about the Transportation Management Plan.

Operational

In the context of transportation operations, direct energy involves all energy consumed by vehicle propulsion (e.g., automobiles, trains, airplanes). This energy consumption is a function of traffic characteristics such as vehicle miles traveled, speed, vehicle mix, and thermal value of the fuel being used.

As described in Section 2.1.7, the net change in the countywide vehicle miles traveled due to the project auxiliary lanes is expected to be zero or a small negative value. Project bus-on-shoulder and trail components would result in a mode shift from auto to transit, bicycle, and pedestrian modes of transportation, which in turn would result in a countywide net decline of 6,952 vehicle miles traveled per day in 2025 and 8,094 vehicle miles traveled per day in 2045 (CDM Smith 2023). Another important consideration is that for operation of a project over the long term, newer and more fuel-efficient vehicles will enter the fleet, resulting in an overall lower potential for an increase in energy consumption due to vehicle traffic.

Recurrent congestion contributes to inefficient energy consumption as vehicles use extra fuel while idling and accelerating in stop-and-go traffic or moving at slow speeds (FHWA and Caltrans 2018:2.2.8-1). The project proposes to build 12-foot auxiliary lanes on both northbound and southbound sides of State Route 1 between the Freedom Boulevard and Rio Del Mar Boulevard interchanges and would save energy by reducing traffic delay within the project limits. It will improve the flow of traffic entering the highway due to the installation of auxiliary lanes. As such, it is unlikely to increase direct energy consumption through increased fuel usage.

Furthermore, building two new trail overcrossings over State Route 1 would allow safer crossing of State Route 1 for pedestrians and cyclists and provide connectivity to existing bicycle facilities to encourage the use of non-automobile travel modes and reduce associated fuel consumption. As such, the project would conserve transportation energy and not result in a wasteful, inefficient, or unnecessary consumption of energy.

Indirect Energy Consumption

Periodic maintenance and landscaping activities during project operations are considered indirect energy consumption because the equipment and vehicles used to maintain the project and facilities consume fuel. This type of indirect energy consumption can only be discussed qualitatively because the exact frequency and scale of activities are unknown. Maintenance comprises energy for the day-to-day upkeep of equipment and systems, as well as the energy embedded in any replacement equipment, materials, and supplies. The energy needed to maintain the Build Alternative improvements would not

be measurably greater than the energy used to maintain the existing facility within the project limits. For example, operations would not require Caltrans to purchase additional maintenance vehicles.

No-Build Alternative

If the project is not built, traffic delay would continue to increase within the project limits as the regional population and traffic grow. Energy would continue to be used by ever-increasing idling and stop-and-go traffic. Gasoline consumption under the No-Build Alternative would be approximately 8,567,164 gallons per year in 2025 and approximately 8,129,385 gallons per year in 2045. Diesel fuel consumption would be 776,800 gallons per year in 2025 and 762,194 gallons per year in 2045 (Terry A. Hayes Associates, 2022b). Without the proposed auxiliary lanes and Bus-on-Shoulder facilities, bus operations would not become more efficient with the potential to attract new riders and reduce low-occupancy vehicle travel. Pedestrian and bicycle facility improvements and connectivity to regional trails also would not be built, potentially discouraging the increased use of nonmotorized transportation modes that reduce fuel energy consumption.

Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to reduce energy use.

- **AMM-EN-1:** The final design plans will provide landscaping where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting. Landscaping reduces surface warming and, through photosynthesis, decreases carbon dioxide.
- **AMM-EN-2:** The final design plans will incorporate the use of energy-efficient lightings, such as light-emitting diode traffic signals and solar-powered flashing beacons during construction.
- **AMM-EN-3:** The Build Alternative will incorporate the following best available control technologies related to energy use:
 - Use cement blended with the maximum feasible amount of fly ash or other materials (i.e., limestone).
 - Recycle construction materials. Recycled products typically have lower manufacturing and transport energy costs because they do not use raw materials, which must be mined and transported to a processing facility.
 - Use lighter-colored pavement where feasible to increase albedo.
 - Use recycled water or grey water for fugitive dust control.
 - Employ energy-efficient and fuel-efficient vehicles and equipment and zero- and/or near-zero emission technologies.
 - Encourage ride-sharing and carpooling for construction crews.

These energy conservation features are consistent with state and local policies to reduce energy. Therefore, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy.

References

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- Federal Highway Administration and California Department of Transportation (Caltrans). 2018. Santa Cruz Route 1 Tier 1 and Tier 2 Final Environmental Impact Report/Environmental Assessment with a Finding of No Significant Impact. Available: https://sccrtc.org/wp-content/uploads/2019/01/Hwy1FED/Santa_Cruz_Hwy_1_Tier_I_and_Tier_II_FEIR-EA-FONSI_Volume-I_Dec2018_SIGNED.pdf. Accessed May 11, 2022.
- Terry A. Hayes Associates, Inc. 2022b. *Energy Analysis Report State Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements – Freedom Boulevard to State Park Drive – and Coastal Rail Trail Segment 12 Project*. Santa Cruz County. E.A. 05-0C734. Prepared for Caltrans District 5. July.

2.3 Biological Environment

2.3.1 Natural Communities

This section discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species, and includes information on wildlife corridors and habitat fragmentation. *Wildlife corridors* are areas of habitat used by wildlife for seasonal or daily migration. *Habitat fragmentation* involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Affected Environment

The information in this section is summarized from the Natural Environment Study prepared for the project (SWCA Environmental Consultants 2022).

The Biological Study Area includes all areas that could potentially be affected by the project. The project boundaries, characteristics of immediately surrounding areas, extent of development, type and proximity of natural land cover, hydrologic connectivity, and regional context of the project were used to determine the Biological Study Area. The Biological Study Area includes all areas that could potentially be affected, temporarily or permanently, by the project within the maximum footprint of all build alternatives at both interchanges.

Natural community/habitat types present within the Biological Study Area include riverine (stream), riparian woodland, mixed coast live oak woodland, eucalyptus woodland, mixed coniferous woodland, mixed woodland, developed/landscaped areas, annual grassland, and ruderal/disturbed vegetation. Constructed stormwater ditches are also present. Riverine and riparian forest habitats are associated with the riparian corridors of the streams and drainages within and adjacent to the Biological Study Area. Mixed coast live oak woodland, mixed woodland, mixed coniferous woodland, landscaped areas, and ruderal/disturbed areas are present in upland areas of the Biological Study Area. A combination of coast live oak (*Quercus agrifolia*) and coast redwood (*Sequoia sempervirens*) commonly grow along the edges of State Route 1 and many have either been planted or became established through natural succession.

Natural communities present within the Biological Study Area are detailed in Table 2-57, illustrated on Figures 2-23a through 2-23f at the end of this section, and described below the table.

Table 2-57. Natural Communities in the Biological Study Area

Land Cover	Acres	Percent of Biological Study Area
Annual Grassland	0.1	0.15%
Landscaped	6.7	11%
Developed	40	65%
Ditch	0.04	0.06%
Eucalyptus Woodland	0.13	0.2%
Mixed Coast Live Oak Woodland and Forest	2.56	4%
Mixed Coniferous Woodland	7.88	13%
Mixed Woodland	1.59	2.6%
Riparian Woodland	1.53	2.5%
Ruderal / Disturbed	1.09	1.8%
Stream	0.23	0.38%
Total	61.85	100%

Streams

Streams present in the Biological Study Area include Aptos Creek and Valencia Creek, which are both perennial. Streams provide important habitat for aquatic species, such as fish, amphibians, and turtles. Steelhead (*Oncorhynchus mykiss irideus*) are known to be seasonally present in Aptos and Valencia Creeks. Additional details on streams, ditches, and associated riparian areas are provided in Section 2.3.2, Wetlands and Other Waters.

Ditch

Roadside ditches occur along both sides of State Route 1 just east of the Santa Cruz Branch Line bridge crossing of Valencia Creek. These ditches provide minimal habitat value for wildlife.

Developed

Areas mapped as developed include roads and anthropogenic features such as parking lots. Vegetation in these areas, if present at all, is usually sparse, dominated by weedy herbaceous species. Developed land cover includes State Route 1 and adjacent roads. Wildlife species typically associated with developed areas include American crow (*Corvus brachyrhynchos*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*).

Landscaped

Landscaped areas of the Biological Study Area are characterized by ornamental vegetation. Due to its close proximity to the more expansive

developed areas, wildlife associated with landscaped vegetation is the same as associated developed cover.

Ruderal

Ruderal vegetation is characterized by nonnative forbs and grasses in a disturbed habitat typically along the edges of development or areas with frequent anthropogenic impacts (e.g., mowing). In the Biological Study Area, ruderal vegetation is found in the vicinity of State Route 1 and other roadside locations. Wildlife observed in ruderal areas was similar to more dominant, neighboring vegetation types.

Annual Grassland

Dominant species present in the Biological Study Area include wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), Italian wildrye (*Festuca perennis*), and short podded mustard (*Hirschfeldia incana*). This community is patchily present within undeveloped areas of the interchange. Wildlife observed in grassland areas was similar to more dominant, neighboring vegetation types.

Coast Live Oak Woodland and Forest

The coast live oak woodland and forest communities are dominated by coast live oak. Mixed coast live oak woodland exists throughout the Biological Study Area. The understory consists of both herbaceous species and woody shrubs, including milk thistle (*Silybum marianum*), poison oak (*Toxicodendron diversilobum*), sticky monkeyflower (*Diplacus aurantiacus*), coyote brush (*Baccharis pilularis*), coffeeberry (*Frangula californica*), and annual grasses.

Oak woodland typically supports a wide diversity of wildlife. Typical mammal species that may occur in this habitat include western gray squirrel (*Sciurus griseus*), blacktail deer (*Odocoileus hemionus columbianus*), raccoon, striped skunk, duskyfooted woodrat (*Neotoma fuscipes*), coyote (*Canis latrans*), Virginia opossum, and California ground squirrel (*Otospermophilus beecheyii*). Birds that may occur include plain titmouse (*Parus inornatus*), mourning dove (*Zenaidura macroura*), northern flicker (*Colaptes auratus*), acorn woodpecker (*Melanerpes formicivorus*), California towhee (*Pipilo crissalis*), Stellar's jay (*Cyanocitta stelleri*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperi*), and great-horned owl (*Bubo virginianus*). Reptiles that may occur within this habitat type include gopher snake (*Pituophis catenifer*) and western fence lizard (*Sceloporus occidentalis*).

Based on habitat mapping within the Biological Study Area (Figures 2-23a through 2-23f), a total of 2.56 acres of mixed coast live oak woodland are present.

Mixed Coniferous Woodland

This habitat is dominated by coniferous tree species such as Monterey cypress (*Hesperocyparis macrocarpa*) and Monterey pine (*Pinus radiata*). Coast redwood trees are also often present. These species primarily occur in planted or ornamental stands. This habitat is common in the Biological Study Area. Understory species are similar to those in mixed coast live oak woodland.

This vegetation community is sometimes referred to as *Hesperocyparis macrocarpa* Woodland Special Stands or Monterey Cypress Stands; however, it is referred to as mixed coniferous woodlands in this report because they are not naturally occurring. Naturally occurring Monterey cypress stands are considered a sensitive natural community, but the Biological Study Area is outside the natural range of the species. The Monterey cypress trees in the Biological Study Area were planted; therefore, this vegetation type is not considered a sensitive natural community within the Biological Study Area.

Riparian Woodland

The riparian woodlands in the Biological Study Area can be best characterized as bigleaf maple forest and woodland (*Acer macrophyllum* Forest & Woodland Alliance). This habitat is associated with the riparian corridors of the streams and drainages within and adjacent to the Biological Study Area. The canopy is dominated by bigleaf maple (*Acer macrophyllum*), coast live oak, arroyo willow (*Salix lasiolepis*), and coast redwood. The understory commonly consists of California blackberry (*Rubus ursinus*), English ivy (*Hedera helix*), and various annual grasses and other herbaceous plants.

Eucalyptus Woodland

Stands of blue gum eucalyptus (*Eucalyptus globulus*) are located in the western portion of the Biological Study Area. This habitat has sparse to intermittent herbaceous layers. Eucalyptus woodland can provide nesting habitat for raptors and may also provide overwintering habitat for monarch butterflies (*Danaus plexippus*).

Environmental Consequences

Build Alternative

Habitats and Natural Communities of Special Concern

Implementation of the Build Alternative would result in a total permanent impact of 6.897 acres and total temporary impact of 13.663 acres on land cover in the Biological Study Area. Permanent and temporary impacts by land cover are included in Table 2-58. Ditch, riparian woodland, and stream overlap with categories covered in Section 2.3.2, Wetlands.

Table 2-58. Summary of Land Cover Impacts for the Build Alternative

Land Cover	Temporary Impact (Acres)	Permanent Impact (Acres)
Annual Grassland	0.043	0.048
Ditch	0.038	0
Eucalyptus Woodland	0.107	0.020
Landscaped	2.615	3.035
Mixed Coast Live Oak Woodland	1.565	1.019
Mixed Coniferous Woodland	5.639	2.058
Mixed Woodland	1.150	0.441
Riparian Woodland	1.471	0.081
Ruderal / Disturbed	0.846	0.243
Stream	0.232	0
Total	13.663	6.897

The sensitive habitats and natural communities that occur in the Biological Study Area and will be affected by the project include potentially jurisdictional waters, coast live oak woodlands, and critical habitat for Central California coast steelhead. The following subsections discuss impacts on these sensitive habitats.

Coast Live Oak Woodlands

Coast live oak woodlands are considered sensitive under CEQA Section 21083.4. In addition, coast live oak woodlands are considered sensitive by local policies, including the Santa Cruz County Local Coastal Program.

The Build Alternative would result in temporary impacts on 1.564 acres and permanent impacts on 1.019 acres of mixed coast live oak woodland. These impacts are presented in terms of canopy cover acreage and do not quantify the numbers and trunk sizes (in diameter at breast height) of oak trees potentially affected. Oak trees to be removed for construction would be surveyed and tallied during the permitting phase of the project.

Critical Habitat

The U.S. Fish and Wildlife Service (Service) and the National Marine Fisheries Service designated critical habitat to protect areas that are essential to the survival of federally listed species of plants and wildlife.

Critical habitat was established for the Central California coast steelhead distinct population segment on July 10, 2000 (70 *Federal Register* 37160). Within the Biological Study Area, Aptos Creek and tributaries are considered to be critical habitat for Central California coast steelhead within the critical habitat unit Aptos-Soquel Hydrologic Sub-area 330413 (70 *Federal Register* 37160).

These units contain the six primary constituent elements that are critical to the conservation of the species (70 FR 52630):

1. Freshwater Spawning sites
2. Freshwater rearing sites
3. Freshwater migration corridors
4. Estuarine areas
5. Nearshore marine areas
6. Offshore marine areas

The National Marine Fisheries Service has not designated essential fish habitat for steelhead.

Project activities could result in temporary or permanent impacts on aquatic and riparian habitats along Aptos and Valencia Creeks. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions within Aptos and Valencia Creeks and adjacent channel banks. Project activities could disturb channel bank and bed material and increase the potential for erosion and sediment transport downstream. If erosion did occur, increased suspended sediment load could impair water quality or cover streambed substrate downstream of the Biological Study Area. Water quality degradation resulting from project activities could potentially affect steelhead habitat. The use of mechanized equipment could also lead to the unintentional release of fuels, lubricants, solvents, or other pollutants into the channel, thus affecting water quality. Additionally, riparian habitat in the Biological Study Area provides cover to Aptos and Valencia Creeks, providing adequate shade to maintain water temperatures during summer months in the channel.

Such effects would be avoided and minimized through avoidance and minimization measures and Best Management Practices that are incorporated as part of the project. Due to the temporary impacts of dewatering, there will be short term impacts to benthic macro invertebrates, which will lead to a temporal loss of habitat. Therefore, the project may affect, and is likely to adversely affect, Central California coast steelhead critical habitat.

Tree Removal (revised in the final environmental document to include supplemental tree survey information).

Tree surveys were conducted in the project area in 2021 with a supplemental survey in 2023 for both the highway component and the trail component.

- Approximately 1,159 trees would be removed along the highway alignment, including 202 county significant trees.
- Approximately 553 trees would be removed along the Coastal Rail Trail, including 123 county significant trees.

Tree removal estimates are conservative for the purposes of this analysis and will be further refined during the final design phase.

No-Build Alternative

The No-Build (No-Action) Alternative would not result in habitat changes or increases in impervious surface area or other structures. Therefore, there would be no impacts on the habitats discussed above.

Avoidance, Minimization, and/or Mitigation Measures

The project has the potential to affect riparian areas and other waters within the Biological Study Area. Recommended measures include the following:

AMM BIO-1: Prior to construction and if required, the Santa Cruz County Regional Transportation Commission will obtain a 404 permit (anticipated to be Nationwide Permit 14 for linear transportation projects) from the U.S. Army Corps of Engineers, a 401 Certification and/or Waste Discharge Requirements from the Regional Water Quality Control Board, a Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife, and a Coastal Development Permit (CDP) or waiver from the California Coastal Commission/applicable Local Coastal Programs.

AMM BIO-2: Prior to construction, Santa Cruz County Regional Transportation Commission will prepare a Mitigation and Monitoring Plan (MMP) to mitigate impacts on vegetation and natural habitats, including jurisdictional areas. The MMP will be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Santa Cruz County Regional Transportation Commission will implement the MMP as necessary during construction and immediately following project completion.

AMM BIO-3: Prior to any ground-disturbing activities, environmentally sensitive area fencing will be installed around jurisdictional waters and the dripline of trees to be protected within project limits. Environmentally sensitive areas will be noted on design plans and delineated in the field prior to the start of construction activities.

AMM BIO-4: A qualified biological monitor(s) will ensure compliance with avoidance and minimization measures within the project environmental documents. Full-time monitoring will occur during vegetation removal and initial ground disturbance, water diversion implementation and removal, installation of temporary environmentally sensitive area fencing in jurisdictional areas, and temporary erosion control installation. Monitoring may be reduced to part time once construction activities are underway and the potential for additional impacts is reduced.

AMM BIO-5: During project activities, the biological monitor(s) will coordinate with federal, state, and local agencies and the construction contractor to ensure construction schedules comply with biological requirements.

AMM BIO-6: Prior to project implementation, the project site will be clearly flagged or fenced so that the contractor is aware of the limits of allowable site access and disturbance. Areas within the designated project site that do not require regular access will be clearly flagged as off-limit areas to avoid unnecessary damage to sensitive habitats or existing vegetation within the project site.

AMM BIO-7: Prior to project implementation, a project Erosion Control Plan will be prepared.

AMM BIO-8: During project activities, erosion control measures will be implemented. Fiber rolls and sediment barriers (e.g., straw bales) will be installed between the project site and adjacent wetlands and other waters. At a minimum, these measures will be checked and maintained on a daily basis throughout the construction period. The contractor will also apply adequate dust control techniques, such as site watering, during construction.

AMM BIO-9: To control erosion during and after project implementation, standard Caltrans Best Management Practices will be implemented.

AMM BIO-10: During project activities, work occurring within stream channels will be conducted during the dry season if possible (June 1–September 30). If in-stream work will be necessary, a Diversion and Dewatering Plan will be prepared, submitted for agency approval, and implemented.

AMM BIO-11: Prior to the onset of work, a Hazardous Materials Response Plan will be prepared to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

AMM BIO-12: During project activities, the cleaning and refueling of mobile equipment and vehicles will occur only within a designated staging

area and at least 100 feet from wetlands, other waters, or other aquatic areas. This staging area will conform to Best Management Practices applicable to attaining zero discharge of stormwater runoff. At a minimum, all equipment and vehicles will be checked and maintained on a daily basis to ensure proper operation and avoid potential leaks or spills. Stationary equipment will be in secondary containment at all times when within 100 feet of streams.

AMM BIO-13: During project activities, all project-related hazardous materials spills within the project site will be cleaned up immediately. Spill prevention and cleanup materials will be on-site at all times during construction.

AMM BIO-14: The contractor will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. When practicable, invasive exotic plants in the project site will be removed and properly disposed.

AMM BIO-15: During construction, trash will be contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

AMM BIO-16: During project activities, no pets will be allowed on the construction site.

Mitigation Measure BIO-17: The goal of compensatory mitigation is to prevent a net loss of wetlands or other aquatic resource acreage, function, and value. Several types of compensatory mitigation are available to offset impacts on jurisdictional waters, including creation, restoration, enhancement, and preservation of either on-site or off-site aquatic resources.

Affected jurisdictional waters (including federal, state, and/or Coastal Zone wetlands, other waters, and riparian areas) have typically been restored at a 1 to 1 ratio for temporary impacts and mitigated at a 3 to 1 ratio for permanent impacts; the actual mitigation ratio required by the relevant agencies will be negotiated during the permitting process. Compensatory mitigation options will include creation, restoration, enhancement, and preservation implemented either on-site (preferred) or off-site. At a minimum, restoration and mitigation plantings will achieve 75% survival of required replacement plantings at the end of a 5-year period and require no further maintenance for survival. Off-site mitigation, if implemented, will be conducted within the watershed that is being affected, if feasible. Compensatory mitigation will be implemented immediately following project completion. Compensatory mitigation plantings will be monitored on a quarterly basis. Any required maintenance will also occur on a quarterly basis. Maintenance activities will include weeding, debris removal, replanting (if necessary), repair of any vandalism, fertilizing,

and/or pest control. Maintenance activities will be dictated by the results of the quarterly monitoring effort. Santa Cruz County Regional Transportation Commission will be responsible for submitting quarterly reports and annual monitoring reports to Caltrans and the affected regulatory agencies. The annual monitoring report submitted at Year 5 will serve as a final completion report should the mitigation be successful.

The following measures are recommended for coast live oak woodland habitat.

AMM BIO-18: All coast live oak woodland and individual oaks that are considered “significant trees” by the County of Santa Cruz and that are not planned for removal will be delineated on the project plans and provided protective fencing at a distance no less than the dripline of the affected tree canopy. Project equipment will not be permitted to enter the dripline of the coast live oak dripline canopy at any time during the length of the project.

AMM BIO-19: If work is required within the dripline of a “significant tree”, a licensed arborist will be present to supervise all ground disturbances within the critical root zone and activities that may affect branches. The arborist will provide guidance such as temporary damaged root protection, timing between impact and root treatment by arborist, appropriate use of air spade or hand tools to minimize tree damage specific to the action proposed, and to treat root zone and branch damage.

During construction and upon completion of construction the licensed arborist will provide treatment, as the licensed arborist determines is appropriate, to maintain and improve the health of the tree, including pruning of any broken branches or roots, pruning if needed of the broken main stem, and soil supplement and watering programs. All root pruning will be completed with sharpened hand pruners. Pruned roots will be immediately covered with soil or moist fabric. Damaged roots will be treated within 24 hours by a qualified tree specialist to inhibit fungus, insects, or other disease damage.

AMM BIO-20: During project activities, erosion control measures will be implemented. Fiber rolls, and barriers (e.g., hay bales) will be installed between the project site and adjacent coast live oak woodlands. At a minimum, these measures will be checked and maintained daily throughout the construction period. The contractor will also apply adequate dust control techniques, such as site watering, during construction.

AMM BIO-21: During project activities, the cleaning and refueling of mobile equipment and vehicles will occur only within a designated staging area. This staging area will conform to Best Management Practices applicable to attaining zero discharge of stormwater runoff. At a minimum,

all equipment and vehicles will be checked and maintained daily to ensure proper operation and avoid potential leaks or spills.

Mitigation Measure BIO-22: Any coast live oak tree that is considered a “significant tree” by the County of Santa Cruz is removed will be replaced at a 10 to 1 ratio. For trees that have been retained but have sustained impacts within their critical root zone, the impacts will be mitigated as follows: impacts on less than 10% of the tree’s critical root zone and canopy would be mitigated at a 2 to 1 ratio (plant two trees for each tree affected); impacts over 10% and less than 50% of the tree’s critical root zone and/or canopy would be mitigated at a 3 to 1 ratio; impacts on more than 50% of the trees’ critical root zone would require mitigation at a 4 to 1 ratio.

Oak tree replacement efforts will achieve 75% success at the end of a 5-year period and require no further maintenance for survival. The location of these replacement plantings will be on-site, to the maximum extent practicable, and closely associated with existing coast live oak woodland habitat for the purposes of providing continuity with the existing coast live oak woodland habitat. If on-site mitigation is not feasible, off-site locations may be acceptable if they are within the Aptos Creek watershed. The compensatory mitigation will be implemented immediately following project completion. Compensatory mitigation plantings will be monitored on a quarterly basis. Any required maintenance will also occur on a quarterly basis. Maintenance activities will include weeding, debris removal, replanting (if necessary), repair of any vandalism, fertilizing, and/or pest control. Maintenance activities will be dictated by the results of the quarterly monitoring effort. Santa Cruz County Regional Transportation Commission will be responsible for submitting quarterly reports, annual monitoring reports, and a final completion report to Caltrans and the affected regulatory agencies. The annual monitoring report submitted at Year 5 will serve as a final completion report should the mitigation be successful.

The following measure is recommended to address impacts on critical habitat for the Central California coast steelhead distinct population segment:

AMM BIO-23: If in-stream work is proposed to occur in coastal streams, incidental take authorization from National Marine Fisheries Service through a federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement will be acquired, if determined necessary by National Marine Fisheries Service.

Mitigation Measure BIO-24: Measures to avoid, minimize, and/or mitigate impacts discussed in Section 2.3.2, Wetlands and Other Waters will be applied to any loss of aquatic and riparian vegetation within steelhead critical habitat. Additional mitigation may be directed by regulatory agencies.

References

SWCA Environmental Consultants. 2021. Tree Survey Memorandum for the State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements (Freedom Boulevard to State Park Drive), Santa Cruz County, California/SWCA Project Number 067479. April, 2021.

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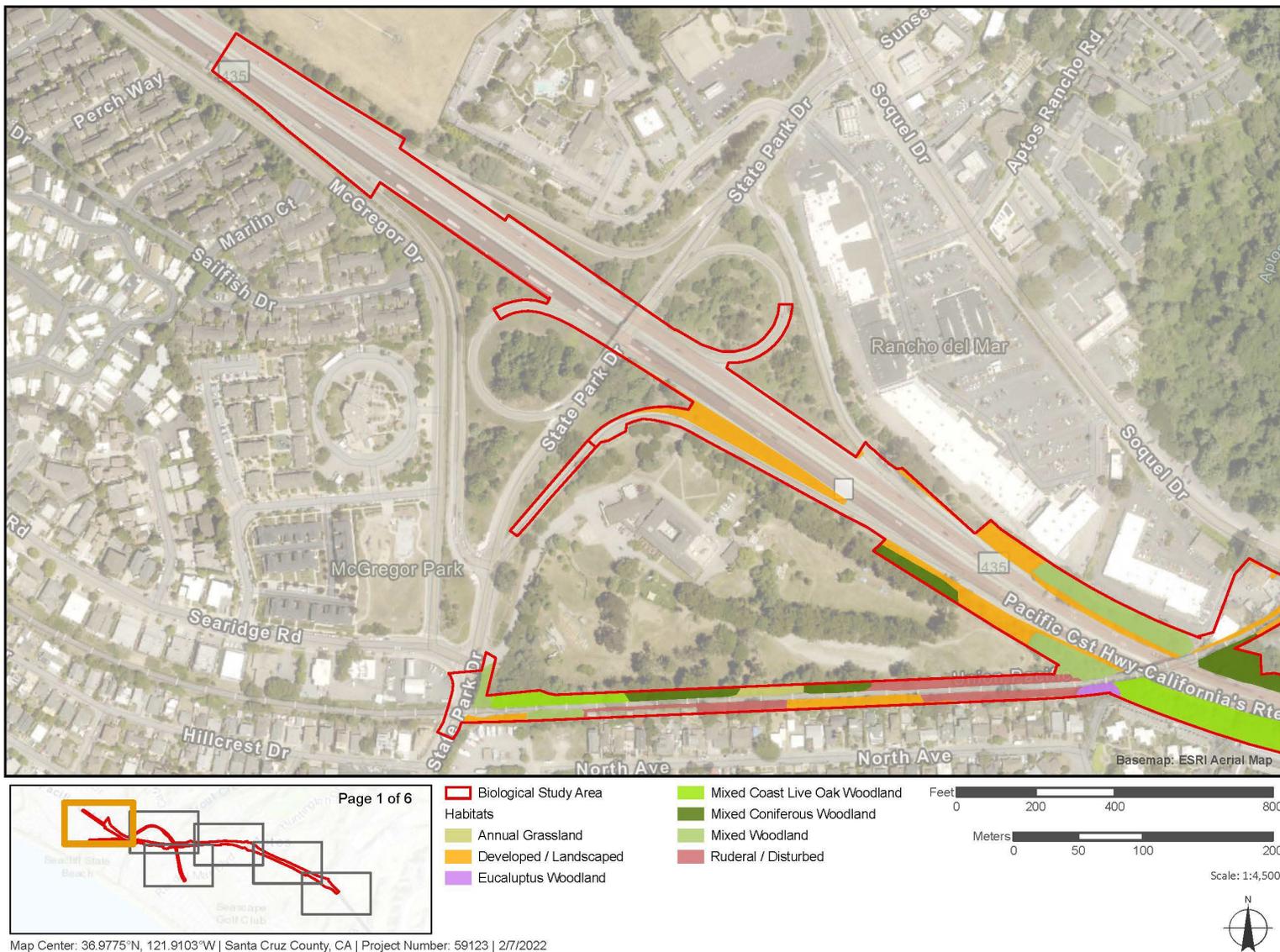


Figure 2-23a. Land Cover in the Biological Study Area

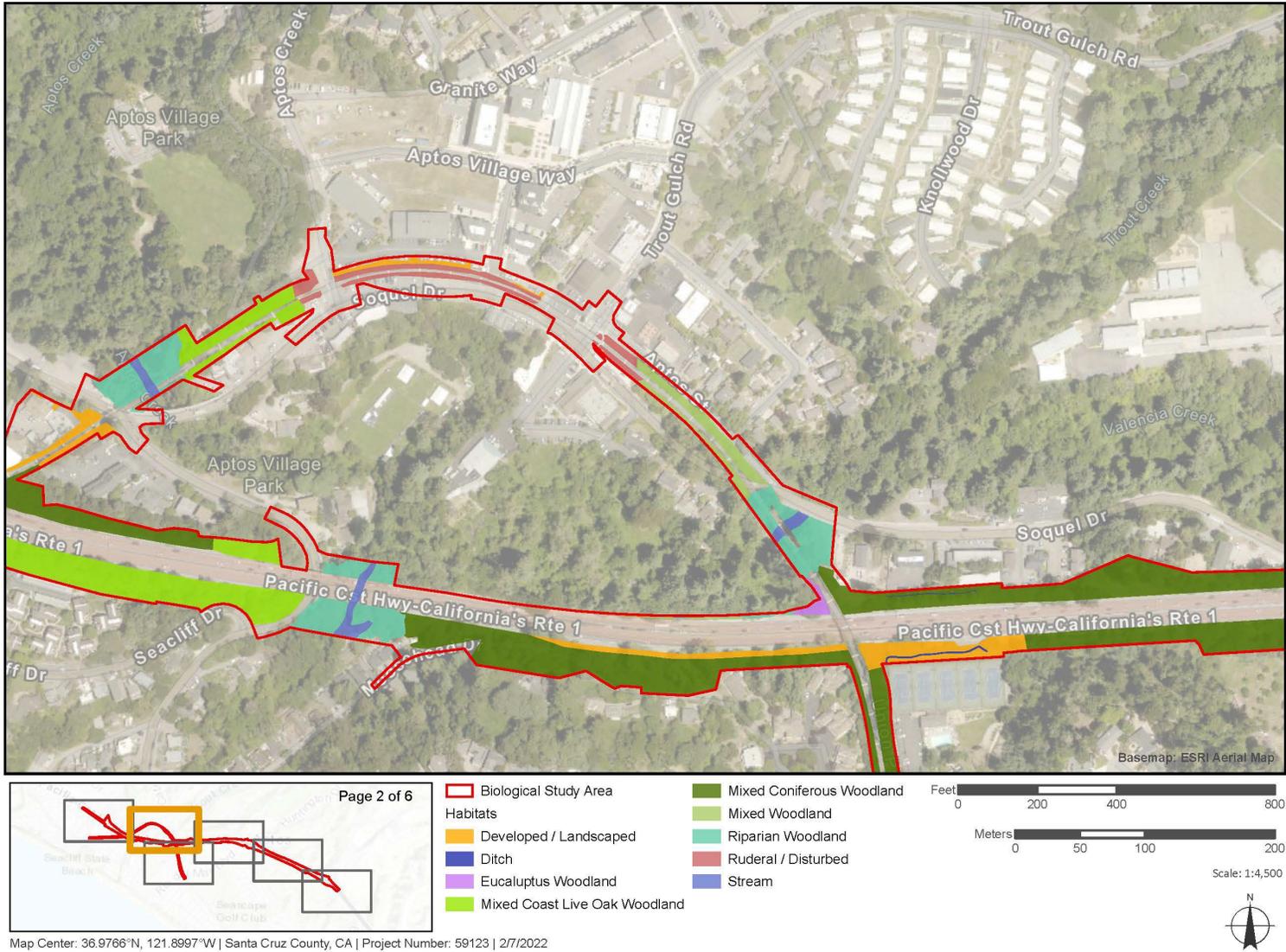


Figure 2-23b. Land Cover in the Biological Study Area

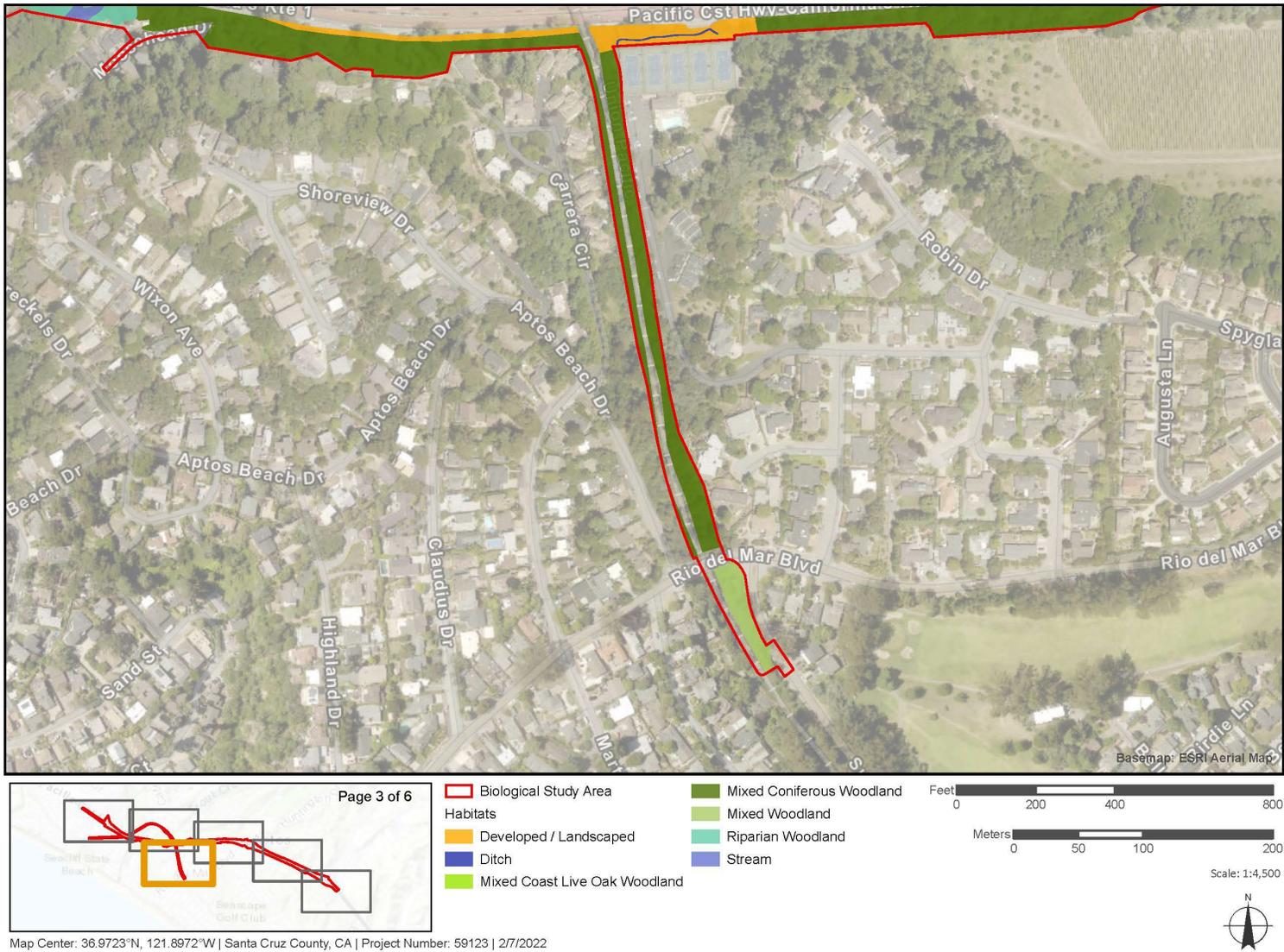
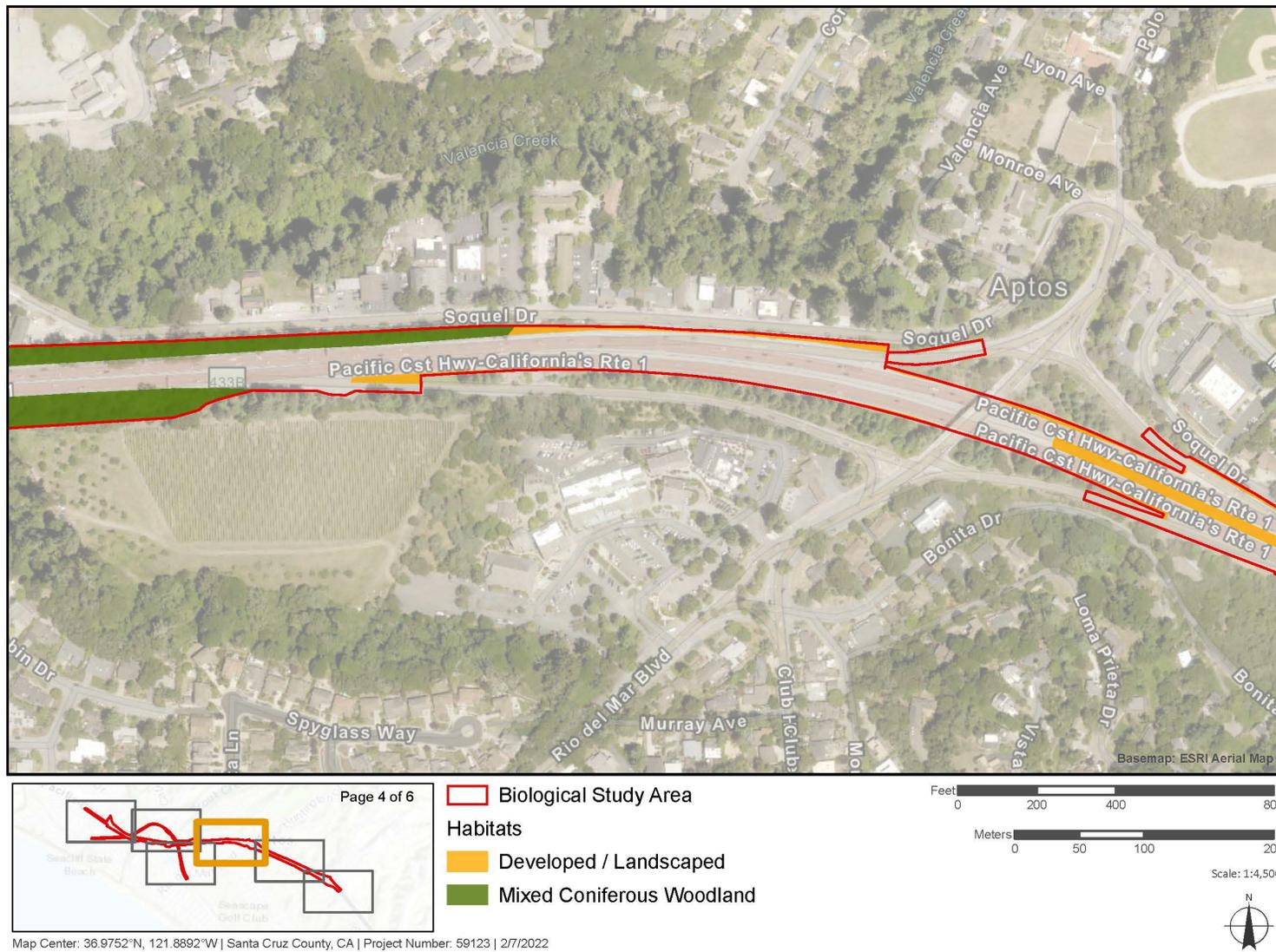


Figure 2-23c. Land Cover in the Biological Study Area



Aerial map showing the project biological study area and various land covers.

Figure 2-23d. Land Cover in the Biological Study Area

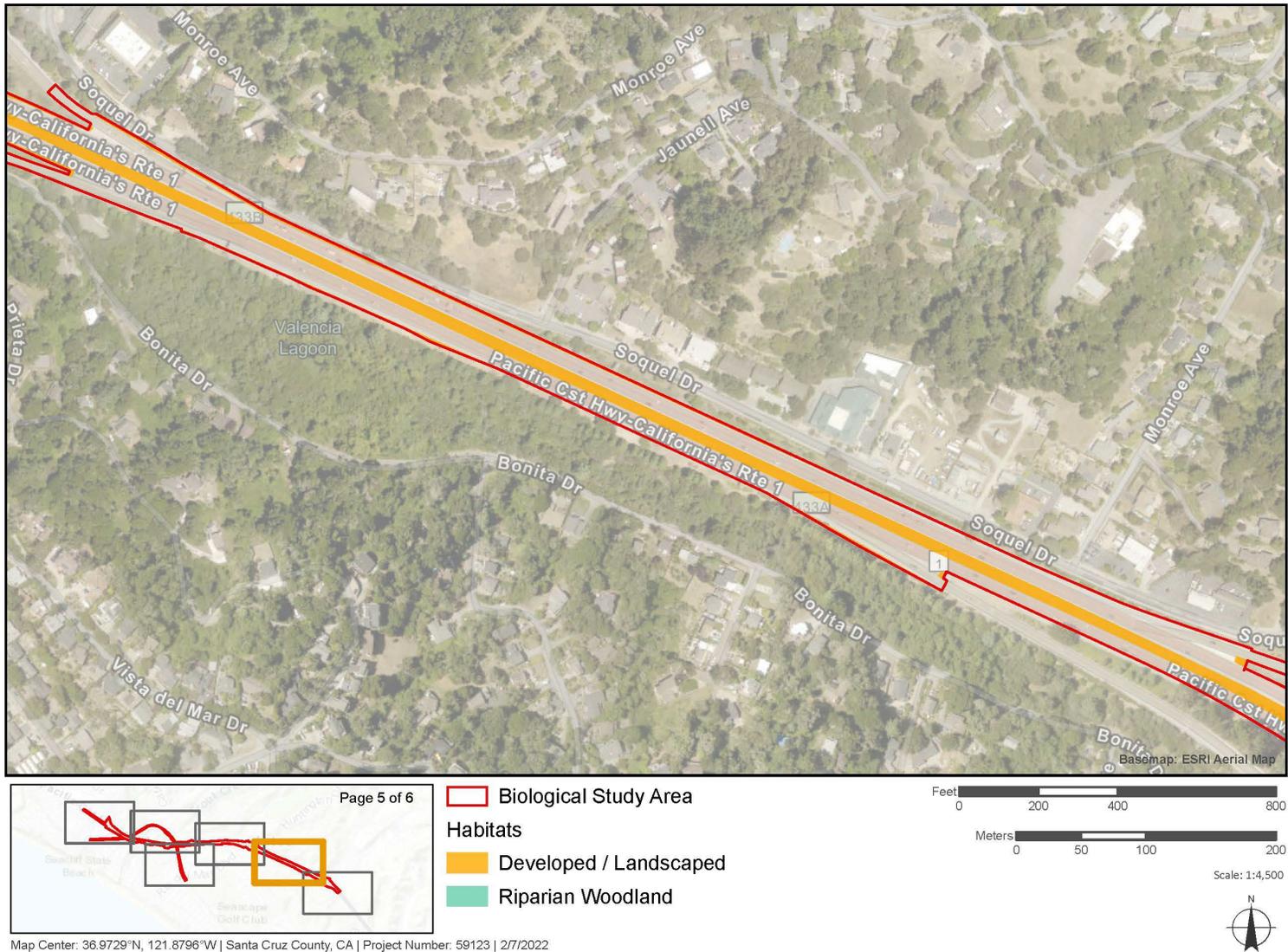
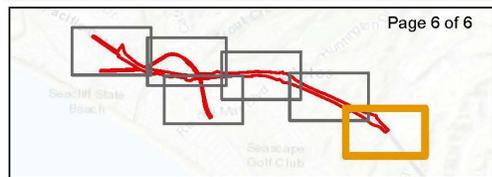
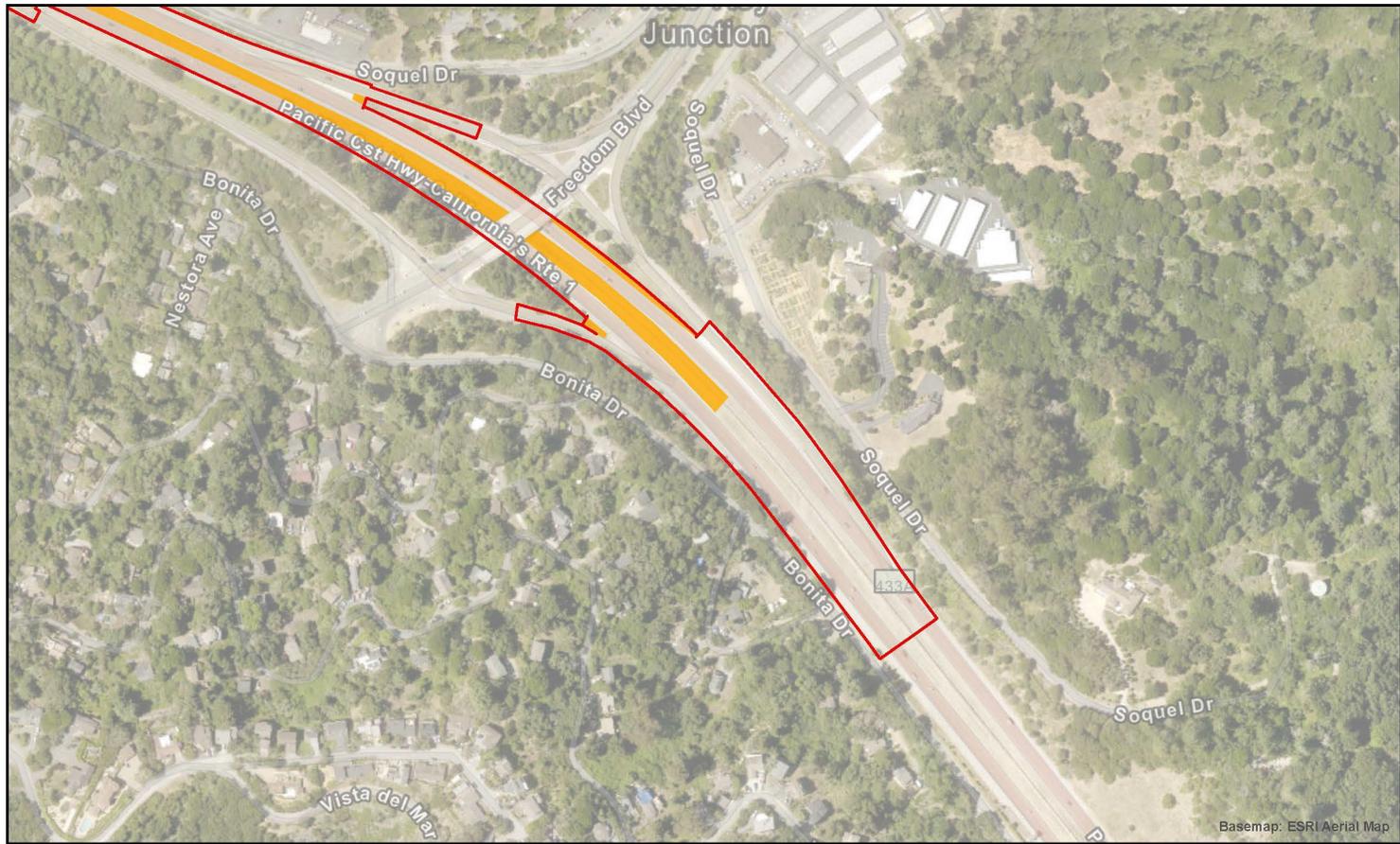
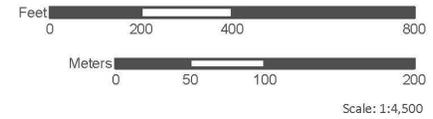


Figure 2-23e. Land Cover in the Biological Study Area



- Biological Study Area
- Habitats
- Developed / Landscaped
- Mixed Woodland



Map Center: 36.9691°N, 121.8716°W | Santa Cruz County, CA | Project Number: 59123 | 2/7/2022

Figure 2-23f. Land Cover in the Biological Study Area

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S. Code 1344), is the primary law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over nontidal waterbodies extend to the ordinary high-water mark, in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the ordinary high-water mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (i.e., water-loving) vegetation, wetland hydrology, and hydric soils (i.e., soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the U.S. Environmental Protection Agency.

The U.S. Army Corps of Engineers issues two types of 404 permits: general and individual. There are two types of general permits: regional and nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of U.S. Army Corps of Engineer's individual permits. There are two types of individual permits: standard permits and letters of permission. For individual permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines (Guidelines) (40 Code of Federal Regulations Part 230), and whether permit approval is in the public interest. The Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers

may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

Executive Order 11990, Executive Order for the Protection of Wetlands, also regulates the activities of federal agencies with regard to wetlands. Essentially, a federal agency, such as the Federal Highway Administration or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards and the California Department of Fish and Wildlife. In certain circumstances, the California Coastal Commission may also be involved. Sections 1600–1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify California Department of Fish and Wildlife before beginning construction. If California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement is required. California Department of Fish and Wildlife jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the U.S. Army Corps of Engineers and/or Regional Water Quality Control Board may be included in the area covered by a Lake or Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife when they occur as part of a stream or lake system.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Water Quality Control Act are permitted by waste discharge requirements and would be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. See Section 2.2.2, *Water Quality*, for more details.

Regional Water Quality Control Board's jurisdiction (i.e., waters of the State) is conservatively interpreted as including natural streambeds, areas extending from the streambed/thalweg to the outer edge of adjacent riparian vegetation, isolated wetlands or waters that may not be under U.S. Army Corps of

Engineers jurisdiction, artificial ditches (non-agricultural) that could be relocated waters of the State and have become relatively permanent features of the natural landscape, and excavated ponds or other artificial features that collect and/or convey surface water. Based on previous experience with the Central Coast Regional Water Quality Control Board, their interpretation of state jurisdiction includes streambanks and riparian areas, despite the lack of a statewide definition and methodology for limits of waters of the State.

Affected Environment

The information in this section is summarized from the Natural Environment Study prepared for the project (SWCA Environmental Consultants 2022a) and the Aquatic Resources Delineation Report (ARDR) prepared for the project (SWCA Environmental Consultants 2022b).

The biological study area contains 0.226 acre of potentially jurisdictional non-wetland waters of the U.S. No jurisdictional wetlands of the U.S. were delineated within the Biological Study Area.

The aquatic resources delineation report identified potential jurisdictional waters of the state within the Biological Study Area (Figures 2-24a through 2-24c). These include 1.209 acres of riparian non-wetlands (i.e., riparian woodland), 0.226 acre of streambed (i.e., stream), and 0.038 acre of ditch for a total of 1.473 acres that may fall under the jurisdiction of Regional Water Quality Control Board and the California Department of Fish and Wildlife. Streams are waters of the state that are the same areas noted above as federal waters of the U.S., considered other waters. Waters of the state that are characterized as riparian non-wetlands consist of riparian vegetation that extends above the ordinary high-water mark and lacks one or more of the three wetland parameters; this is by far the largest potentially jurisdictional aquatic feature within the Biological Study Area in terms of acreage. The ditches on either side of State Route 1 were also assessed as qualifying as potential waters of the state. No jurisdictional wetland waters of the U.S. that meet the State Water Resources Control Board are present in the Biological Study Area.

The jurisdictional delineation identified potential jurisdictional coastal zone aquatic resources within the Biological Study Area. These include 0.562 acre of coastal zone riparian non-wetlands and 0.135 acre of coastal zone stream for a total of 0.697 acre that may fall under the jurisdiction of the California Coastal Commission and may be considered environmentally sensitive habitat areas under the County of Santa Cruz Local Coastal Program. Coastal zone riparian non-wetlands and stream are roughly equivalent to the descriptions above for waters of the state (riparian non-wetlands, and streambed, respectively). In the coastal areas of the Biological Study Area, the riparian non-wetland areas were evaluated based on the coastal one-parameter wetland conditions and were found not to be coastal wetlands. The ditches on either side of State Route 1 have been excluded because this type

of anthropogenic feature is not regulated as an environmentally sensitive habitat area based on review of Local Coastal Program documentation.

Finally, the findings are considered preliminary. Areas of potential jurisdiction are subject to final verification and approval by the regulatory agencies (i.e., U.S. Army Corps of Engineers, Regional Water Quality Control Board, the California Department of Fish and Wildlife, and California Coastal Commission/Local Coastal Programs) and will be confirmed during the permitting phase of the project.

Environmental Consequences

The potentially jurisdictional waters present within the Biological Study Area provide essential ecosystem services that include habitat for plants and wildlife, water quality, and ecological functions. Project-related construction activities have the potential to affect water quality from erosion and sedimentation that could affect the overall function and value of potentially affected features. This could, in turn, result in deleterious effects on the health of wildlife species present and the loss or degradation of habitat for special-status wildlife species within the Biological Study Area and downstream. The Build Alternative would require the construction of bridges that would cross Aptos and Valencia Creeks. This activity would result in permanent and temporary fill within Aptos Creek, temporary fill within Valencia Creek, and surrounding areas.

Build Alternative

Direct impacts on non-wetland waters are related to adding structural fill within jurisdictional waters. Therefore, the impacts of the build alternative, including the State Route 1 widening and trail construction, are combined and discussed collectively in this section.

The Build Alternative would result in temporary impacts on 0.226 acre of potentially jurisdictional waters of the U.S. in the Biological Study Area (Table 2-59). It would result in temporary impacts on 1.473 acres and permanent impacts on 0.061 acre of potentially jurisdictional waters of the state and areas considered jurisdictional by the California Department of Fish and Wildlife and the Regional Water Quality Control Board in the Biological Study Area. It would result in temporary impacts on 0.697 acre and permanent impacts on 0.061 acre of waters potentially considered jurisdictional within the coastal zone. In addition, temporary creek diversions will be needed on the upstream side of the construction zones along Aptos Creek and Valencia Creek to support bridge work including new foundations for the bridge columns in Aptos Creek and interim fish passage improvements along the Valencia Creek Arch Culvert. Plans for these improvements are currently in progress, and the Santa Cruz Regional Transportation Commission is in coordination with the California Department of Fish and Wildlife to identify the temporary fish passage design.

The project will implement stormwater Best Management Practices consistent with Caltrans' Statewide Storm Water Management Plan as required under the Construction General Permit. The avoidance and minimization measures described below would reduce potential impacts on sensitive habitats, including jurisdictional waters. Mitigation Measure BIO-17 would compensate for impacts on jurisdictional waters. See Section 2.3.1, *Natural Communities*, for full text of the mitigation measure.

Table 2-59. Summary of Aquatic Resources Impacts

Jurisdiction	Temporary Impacts (Acres)	Permanent Impacts (Acres)
U.S. Army Corps of Engineers - Waters of the U.S. (Other Waters – Perennial Stream)	0.226	0
U.S. Army Corps of Engineers - Waters Total Potential U.S. Army Corps of Engineers Jurisdiction Impacts	0.226	0
Regional Water Quality Control Board - Waters of the State (Riparian Non-Wetlands)	1.209	0.061
Regional Water Quality Control Board - Waters of the State (Streambed)	0.226	0
Regional Water Quality Control Board - Waters of the State (Ditch)	0.038	0
Regional Water Quality Control Board - Total Potential Regional Water Quality Control Board Jurisdiction	1.925	0.061
California Department of Fish and Wildlife - Riparian Non-Wetlands	1.209	0.061
California Department of Fish and Wildlife - Streambed	0.226	0
California Department of Fish and Wildlife - Ditch	0.038	0
Total Potential California Department of Fish and Wildlife Jurisdiction	5.323	0.061
California Coastal Commission - Coastal Zone Riparian Non-Wetlands	0.562	0.061
California Coastal Commission - Coastal Zone Stream	0.135	0
California Coastal Commission - Total Potential Coastal Zone/California Coastal Commission Jurisdiction	11.343	0.061

No-Build Alternative

No project activities would occur; therefore, no impacts on aquatic resources or other habitats of concern would occur.

Avoidance, Minimization, and/or Mitigation Measures

Avoidance and minimization measures BIO-1 through BIO-16, as identified in Section 2.3.1, are recommended to avoid and minimize potential impacts on riparian areas and other waters within the Biological Study Area. Mitigation Measure BIO-17 would compensate for impacts on jurisdictional waters. See Section 2.3.1 for full text of the mitigation measure.

References

SWCA Environmental Consultants. 2022a. Natural Environmental Study. For the State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project. San Luis Obispo. Final. September.

SWCA Environmental Consultants. 2022b. Aquatic Resources Delineation Report for the State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project, Santa Cruz County, California. May.

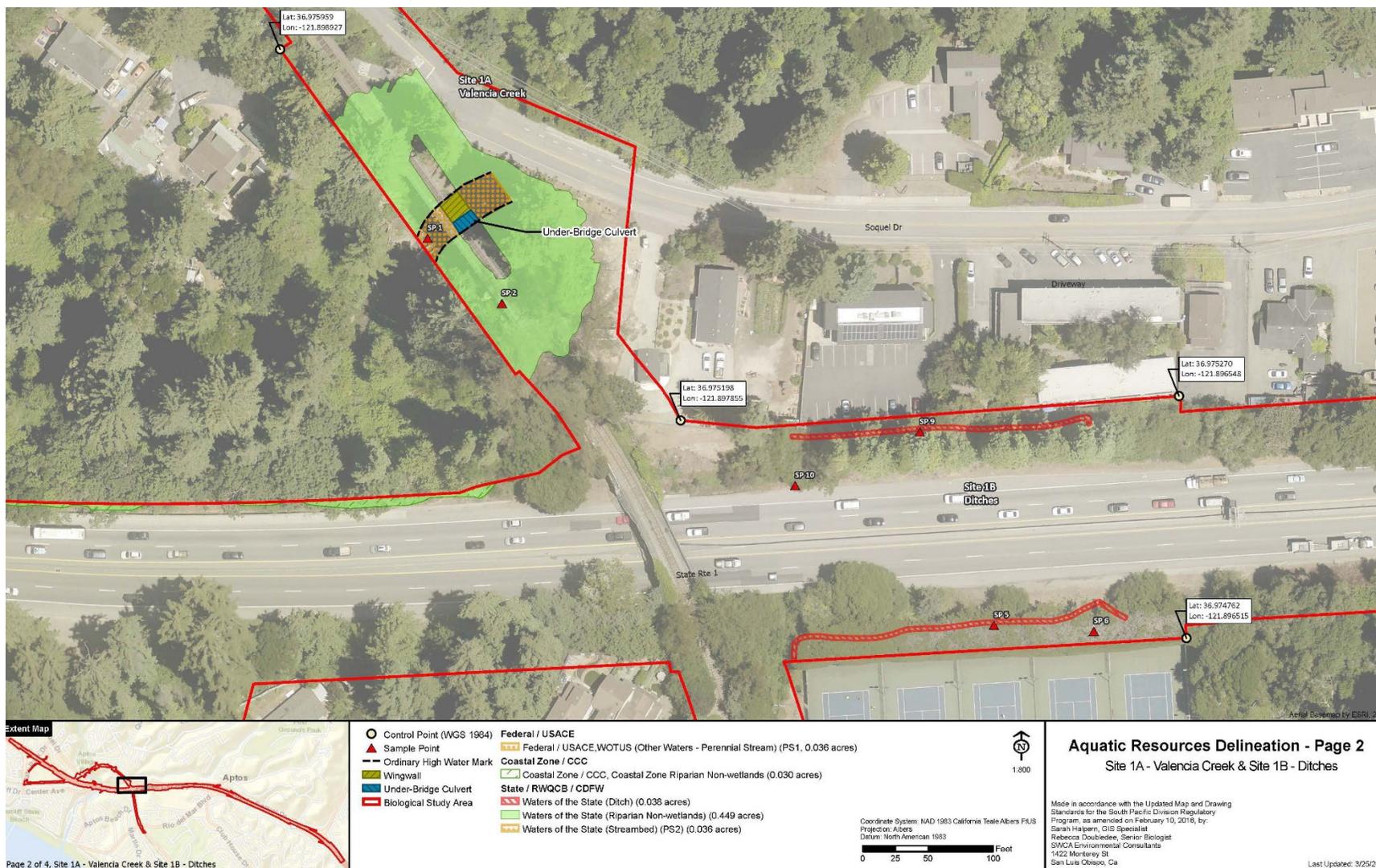


Figure 2-24a. Jurisdictional Waters

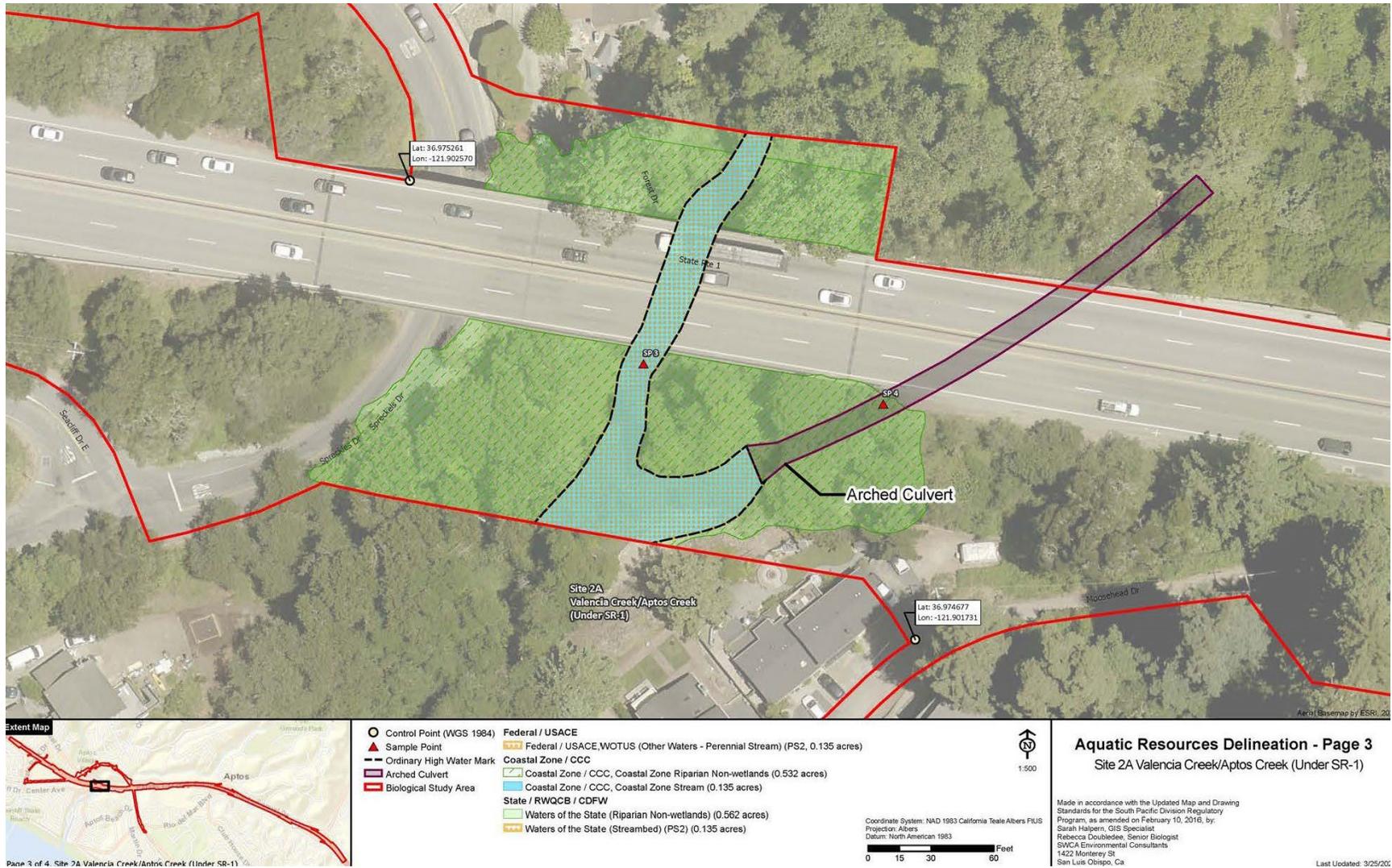


Figure 2-24b. Jurisdictional Waters



Figure 2-24c. Jurisdictional Waters

2.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service (the Service) and California Department of Fish and Wildlife have regulatory responsibility for the protection of special-status plant species. Special-status species are selected for protection because they are rare and/or subject to population and habitat declines. *Special status* is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the federal Endangered Species Act and/or the California Endangered Species Act. See Section 2.3.5, *Threatened and Endangered Species*, for detailed information about these species.

This resource section discusses all other special-status plant species, including the California Department of Fish and Wildlife species of special concern, U.S. Fish and Wildlife Service-candidate species, and California Native Plant Society rare and endangered plants.

The regulatory requirements for the Federal Endangered Species Act can be found at 16 United States Code (U.S. Code) Section 1531 et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act can be found at California Fish and Game Code Section 2050 et seq. Caltrans projects are also subject to the California Native Plant Protection Act, found at California Fish and Game Code Sections 1900–1913, and CEQA, found at California Public Resources Code Sections 21000–21177.

Affected Environment

The information in this section is summarized from the Natural Environment Study prepared for the project (SWCA Environmental Consultants 2022).

Botanical surveys within the Biological Study Area for special-status plants were conducted in April, June, July, and August 2020 during the blooming period for special-status species with the potential to occur in the Biological Study Area. Table 2-60 provides a list of species observed in the Biological Study Area. No special-status plant species were observed during surveys and no special-status plant species are expected to be affected by the project.

Table 2-60. Plant Species within the Biological Study Area

Common Name	Scientific Name	Status (Federal/State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	California Rare Plant Rank 1B.2	Not likely to occur. Suitable coastal bluff scrub habitat is absent in the Biological Study Area and the limited grassland cover within the Biological Study Area is relatively fragmented and disturbed. No California Natural Diversity Database occurrence records are known within 2 miles of the Biological Study Area and none were observed.	Not Applicable
Anderson's manzanita	<i>Arctostaphylos andersonii</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. There are two California Natural Diversity Database occurrences within 2 miles of the Biological Study Area and none were observed.	Not Applicable
Hooker's manzanita	<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are known within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
marsh sandwort	<i>Arenaria paludicola</i>	Federal Endangered/State Endangered, 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	No effect

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
swamp harebell	<i>Campanula californica</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
bristly sedge	<i>Carex comosa</i>	California Rare Plant Rank 2B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
johnny-nip	<i>Castilleja ambigua</i> var. <i>ambigua</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Monterey spineflower	<i>Chorizanthe pungens</i> var. <i>pungens</i>	Federal Threatened / California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. There are four California Natural Diversity Database occurrences within 2 miles of the Biological Study Area. This species was not observed during surveys.	No effect
robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>	Federal Endangered / California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	No effect

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
Brewer's clarkia	<i>Clarkia breweri</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Santa Clara red ribbons	<i>Clarkia concinna</i> ssp. <i>automixa</i>	California Rare Plant Rank 4.3	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
San Francisco collinsia	<i>Collinsia multicolor</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
seaside bird's-beak	<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i>	State Endangered / California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
mountain lady's-slipper	<i>Cypripedium montanum</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
California bottle-brush grass	<i>Elymus californicus</i>	California Rare Plant Rank 4.3	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
minute pocket moss	<i>Fissidens pauperculus</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
San Francisco gumplant	<i>Grindelia hirsutula</i> var. <i>maritima</i>	California Rare Plant Rank 3.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Loma Prieta hoita	<i>Hoita strobilina</i>	California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	Federal Threatened / State Endangered / California Rare Plant Rank 1B.1	May occur. Suitable habitat is present in the Biological Study Area. There is one California Natural Diversity Database occurrence within 2 miles of the Biological Study Area. This species was not observed during surveys conducted during the tarplants' identifiable period.	No effect
arcuate bush-mallow	<i>Malacothamnus arcuatus</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Mt. Diablo cottonweed	<i>Micropus amphibolus</i>	California Rare Plant Rank 3.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
marsh microseris	<i>Microseris paludosa</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
woodland woollythreads	<i>Monolopia gracilens</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. There is one California Natural Diversity Database occurrence within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Dudley's lousewort	<i>Pedicularis dudleyi</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. There is one California Natural Diversity Database occurrence within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
white-rayed pentachaeta	<i>Pentachaeta bellidiflora</i>	Federal Endangered / State Endangered / California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	No effect
Monterey pine	<i>Pinus radiata</i>	California Rare Plant Rank 1B.1	Present (Ornamental). Monterey pines are present in several areas of the Biological Study Area. However, these pines are planted and are not a part of a natural stand; therefore, they would not be considered sensitive.	Not Applicable
white-flowered rein orchid	<i>Piperia candida</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Common Name	Scientific Name	Status (Federal/ State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
Michael's rein orchid	<i>Piperia michaelii</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
San Francisco popcornflower	<i>Plagiobothrys diffusus</i>	State Endangered / California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. There is one California Natural Diversity Database occurrence within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Lobb's aquatic buttercup	<i>Ranunculus lobbii</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
maple-leaved checkerbloom	<i>Sidalcea malachroides</i>	California Rare Plant Rank 4.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
San Francisco campion	<i>Silene verecunda</i> ssp. <i>verecunda</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Common Name	Scientific Name	Status (Federal/State/CRPR)	Potential to Occur in Biological Study Area	Federally Listed Species Determination
Santa Cruz microseris	<i>Stebbinsoseris decipiens</i>	California Rare Plant Rank 1B.2	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Santa Cruz clover	<i>Trifolium buckwestiorum</i>	California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable
Pacific Grove clover	<i>Trifolium polyodon</i>	California Rare Plant Rank 1B.1	Not likely to occur. Marginally suitable habitat is present in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. This species was not observed during surveys.	Not Applicable

Environmental Consequences

Build Alternative

No impacts on special-status plant species are anticipated because none were observed during appropriately timed botanical surveys conducted within the Biological Study Area. The basis for this determination is either there is no suitable habitat for these species within the project Biological Study Area and/or none of these species were observed during appropriately timed surveys conducted within the project Biological Study Area.

No-Build Alternative

The No-Build (No-Action) Alternative would not result in impacts on plant species because the project would not be constructed. Therefore, there would be no impacts on special-status plants.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures for special-status plants are required.

References

SWCA Environmental Consultants. 2022. Natural Environmental Study. For the State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project. Santa Cruz County. September.

2.3.4 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts on wildlife. The Service, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the California Department of Fish and Wildlife are responsible for implementing these laws. This resource section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, *Threatened and Endangered Species*. All other special-status animal species are discussed in this resource section, including the California Department of Fish and Wildlife fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Marine Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- California Fish and Game Code Sections 1600–1603
- California Fish and Game Code Sections 4150 and 4152

Affected Environment

The information in this section is summarized from the Natural Environment Study prepared for the project (SWCA Environmental Consultants 2022). The California Natural Diversity Database documents the special-status animal taxa (federally listed, state listed, California fully protected, species of special concern, California Natural Diversity Database special animals, and/or protected by the Migratory Bird Treaty Act and the California Department of Fish and Wildlife) occurring within the project region (Table 2-61).

Table 2-61. Regionally Occurring Species of Concern

Common Name	Scientific Name	Status	General Habitat Description	Species or Habitat Present / Absent	Rationale
California giant salamander	<i>Dicamptodon ensatus</i>	Species of special concern	Typically found in moist forests and riparian zones in or near clear, cold streams or seeps. Found under logs and debris, and occasionally in trees and shrubs near water. Breeds in clear, cold rivers, creeks, and ponds.	Habitat Present	May occur. Suitable riparian habitat is present in the Biological Study Area. Two California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area
Cooper's hawk	<i>Accipiter cooperii</i>	Watch List	Typically broken riparian woodlands in canyons and floodplains usually below 6,000 feet.	Habitat Present (Marginal)	May Occur. Suitable riparian woodland and forest habitat are present for this species, with only small disjunct linear rows of street trees occurring in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.
Hoary bat	<i>Lasiurus cinereus</i>	(Western Bat Working Group: High Priority)	Coniferous forests and deciduous woodlands. Roosts are typically near clearings at the ends of branches.	Habitat Present	Not likely to occur. Some structures may be suitable for roosting, but the Biological Study Area is surrounded by low-quality foraging habitat and the degree of background noise and human activity reduces the potential for this species to occur. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.

Common Name	Scientific Name	Status	General Habitat Description	Species or Habitat Present / Absent	Rationale
Pallid bat	<i>Antrozous pallidus</i>	Species of special concern (Western Bat Working Group: High Priority)	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Habitat Present	Not likely to occur. Some structures may be suitable for roosting, but the Biological Study Area is surrounded by low-quality foraging habitat and the degree of background noise and human activity reduces the potential for this species to occur. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	Species of special concern	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Species/Habitat Present	Present. San Francisco dusky-footed woodrat nests were observed in the Biological Study Area. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.
Santa Cruz black salamander	<i>Aneides niger</i>	Species of special concern	Moist forests and riparian zones in or near clear, cold streams or seeps. This subspecies is mostly terrestrial, staying underground during dry periods and foraging for small invertebrates aboveground at night during wet weather.	Habitat Present (Marginal)	Not likely to occur. Suitable riparian habitat is present in the Biological Study Area, but the surrounding area is highly urbanized. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Species of special concern	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Habitat Present	Not likely to occur. Some structures may be suitable for roosting, but the Biological Study Area is surrounded by low-quality foraging habitat and the degree of background noise and human activity reduces the potential for this species to occur. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area.

Common Name	Scientific Name	Status	General Habitat Description	Species or Habitat Present / Absent	Rationale
Western pond turtle	<i>Emys (=Actinemys) marmorata</i>	Species of special concern	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg laying.	Habitat Present	May occur. Suitable habitat is present in Aptos and Valencia Creeks. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. Avoidance and minimization measures included in Chapter 4.
White-tailed kite	<i>Elanus leucurus</i>	Fully Protected	Nests in rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Habitat Present (Marginal)	Not likely to occur. Marginally suitable nesting in tall trees and poor-quality foraging habitat in ruderal and grassland areas are present in the Biological Study Area, but the degree of background noise and human activity reduces the potential for occurrence. No California Natural Diversity Database occurrence records are within 2 miles of the Biological Study Area. Avoidance and minimization measures included in Chapter 4.

Other taxa are considered based on the presence of suitable habitat, including the “other nesting birds” category, which was added for the various species of birds with potential to nest in the Biological Study Area, and the “other roosting bats” category, which was added for bat species that could potentially roost in the Biological Study Area.

The California Natural Diversity Database, National Marine Fisheries Service, and Service databases identified a total of 50 special-status wildlife species that have potential to occur in the region. Based on the observations made during the biological reconnaissance-level surveys, all but 17 species were determined to have no potential or were not expected to occur within the Biological Study Area due to the lack of suitable habitat.

The 10 special-status species with potential to occur include California giant salamander, Santa Cruz black salamander, western pond turtle, Cooper’s hawk, white-tailed kite, hoary bat, pallid bat, Townsend’s big-eared bat, and dusky-footed woodrat. None of these 10 species were observed in the Biological Study Area during the survey effort, but they have potential to occur in or near the Biological Study Area and are discussed in further detail below. The monarch butterfly is discussed in Section 2.3.5 *Threatened and Endangered Species*. Although not yet listed, the species is a candidate and, as such, receives protection as if it was listed.

California Giant Salamander

The California giant salamander is a California species of special concern. Two California Natural Diversity Database occurrence records are known from within 2 miles of the Biological Study Area, in portions of Aptos and Valencia Creeks upstream of the Biological Study Area. The species has the potential to occur in the Biological Study Area within Aptos and Valencia Creeks and the adjacent riparian areas; however, California giant salamander was not observed during biological surveys of the Biological Study Area.

Santa Cruz Black Salamander

Santa Cruz black salamander is a California species of special concern. The Biological Study Area is within the known range of Santa Cruz black salamander and suitable habitat is present. No California Natural Diversity Database occurrence records are known from within 2 miles of the Biological Study Area. Santa Cruz black salamander was not observed during biological surveys of the Biological Study Area. The closest California Natural Diversity Database occurrence is located approximately 2 miles north of the Biological Study Area, along Aptos Creek.

Western Pond Turtle

Western pond turtle is a species of special concern. The Biological Study Area is within the known range of western pond turtle and suitable habitat is present. This species has potential to occur in the Biological Study Area

within Aptos and Valencia Creeks. Sandy substrate is absent from upland areas and turtle movement is expected to be impeded by relatively dense ruderal and landscaped vegetation adjacent to the aquatic habitat, so the species is not expected to nest within the Biological Study Area. California Natural Diversity Database occurrence records of the species are absent from within 2 miles of the Biological Study Area, and western pond turtle was not observed during biological surveys of the Biological Study Area.

Cooper's Hawk, White-Tailed Kite, and Other Nesting Migratory Birds

Cooper's hawk is a California Department of Fish and Wildlife watch list species. White-tailed kite is a State of California fully protected species. Its fully protected status means no take authorization can be granted by the State of California for the species, other than for scientific purposes; therefore, take must be completely avoided. Migratory birds and their occupied nests, young, and eggs are protected under federal and state laws. Undeveloped portions of the Biological Study Area include trees and vegetation that provide suitable nesting habitat for a variety of bird species protected under the California Fish and Game Code and Migratory Bird Treaty Act. Cooper's hawk, white-tailed kite, and other nesting migratory birds have been discussed as a group because it is expected that bird species would be subjected to similar impacts in the Biological Study Area, particularly during nesting season.

Two inactive cup nests were observed on the underside of the Rio Del Mar Boulevard bridge above the Santa Cruz Branch Rail Line in the Biological Study Area during the 2020 biological survey.

Suitable nesting substrate for Cooper's hawk and great blue heron (*Ardea herodias*) occurs in limited portions of the Biological Study Area and adjacent areas. No special-status bird species or active nests of migratory bird species were observed during surveys of the Biological Study Area.

Hoary Bat, Pallid Bat, Townsend's Big-Eared Bat, and Other Roosting Bats

The hoary bat is included on the California Natural Diversity Database Special Animals List, the pallid bat is a California species of special concern, and the Townsend's big-eared bat is a California species of special concern. No bat species or roosting sites were observed during reconnaissance surveys of the Biological Study Area and California Natural Diversity Database occurrence records of any bat species are absent from within 2 miles of the Biological Study Area. The Biological Study Area contains riparian areas along Aptos and Valencia Creeks that are highly suitable habitat for bat foraging. Additionally, suitable roosting habitat occurs in trees, bridges, and structures in and surrounding the Biological Study Area, and bat species could roost within and adjacent to the Biological Study Area. Therefore, active roosts of bat species could be affected by the project.

Bridges such as the Rio Del Mar Boulevard overcrossing and the Santa Cruz Branch Rail Line overcrossings may have structural features that are similar to natural bat roosts. The location and setting of these structures indicate that these features may also provide suitable temperature conditions to support roosting bats.

San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat, a California species of special concern, may occur in the Biological Study Area. Wooded habitats throughout the Biological Study Area provide suitable nesting and foraging habitat for this species. This species constructs large stick nests (also known as middens), which may be placed in trees, shrubs, or on the ground. This species may also nest in and around old structures. San Francisco dusky-footed woodrat nests were detected during surveys of the Biological Study Area.

Environmental Consequences

Build Alternative

California Giant Salamander

Grading or other earthwork could affect California giant salamanders in the Biological Study Area, particularly in riparian areas and uplands adjacent to streams. Individuals could therefore be subjected to injury or mortality as a result of ground-disturbing activities, or accidental crushing. Capturing or relocating individual California giant salamanders, if encountered, could subject these animals to stresses that could result in adverse effects.

Santa Cruz Black Salamander

Grading or other earthwork could affect Santa Cruz black salamanders in the Biological Study Area, particularly in uplands adjacent to streams. Individuals could therefore be subjected to injury or mortality as a result of ground-disturbing activities, or accidental crushing. Capturing or relocating individual Santa Cruz black salamanders, if encountered, could subject these animals to stresses that could result in adverse effects.

Western Pond Turtle

Construction activities involving in-water work and dewatering could result in direct injury or mortality, if western pond turtles are inhabiting aquatic or upland areas within the Biological Study Area. Construction activities including the excavation and installation of fill for bridges or other structures would result in the permanent loss of aquatic habitat and degradation. Dewatering could result in a temporary reduction in the quantity of available aquatic habitat. Areas with the greatest potential for impacts on western pond turtle would be along Aptos Creek.

Cooper's Hawk and White-Tailed Kite

Direct impacts on active bird nests and any young or eggs residing in nests could occur during the removal of trees and vegetation and the removal of nests. Temporary indirect impacts on birds could result from disturbance and noise associated with construction activities, which could alter nesting and foraging behaviors.

Hoary Bat, Pallid Bat, Townsend's Big-Eared Bat, and Other Roosting Bats

Direct impacts on bat species that utilize existing trees or structures, including the Santa Cruz Branch Rail Line overcrossings, as roosting habitat could occur during the removal of trees and structures within the Biological Study Area. Temporary indirect impacts on roosting bats could result from disturbance and noise associated with construction activities, which could alter roosting behavior.

San Francisco Dusky-Footed Woodrat

Direct impacts on woodrats could occur during the clearing of vegetation within the Biological Study Area, if San Francisco dusky-footed woodrat or their nests are present in clearing areas.

No-Build Alternative

The No-Build (No-Action) Alternative would not result in habitat modifications. Therefore, there would be no impacts on the special-status animal species discussed above.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and mitigation measures would reduce impacts on animal species.

California Giant Salamander

AMM BIO-25: Qualified biologists shall conduct a preconstruction survey for California giant salamander in areas of suitable habitat where construction will occur. If regulatory agency approval allows, the qualified biologists shall capture and relocate any California giant salamanders (if present) or other sensitive species to suitable habitat outside of the area of impact.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1, *Natural Communities*, would also compensate for potential impacts on California giant salamander habitat. No additional compensatory mitigation is proposed.

Santa Cruz Black Salamander

AMM BIO-26: Qualified biologists shall conduct a preconstruction survey for Santa Cruz black salamander in areas of suitable habitat where construction will occur. If regulatory agency approval allows, the qualified biologists shall capture and relocate any Santa Cruz black salamanders (if present) or other sensitive species to suitable habitat outside of the area of impact.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also compensate for potential impacts on Santa Cruz black salamander habitat. No additional compensatory mitigation is proposed.

Western Pond Turtle

The measures discussed for California red-legged frog and Santa Cruz long-toed salamander in Section 2.3.5 are applicable to western pond turtle to avoid or minimize potential impacts on the species. In addition, potential impacts on western pond turtle will be avoided through the implementation of the following measures:

AMM BIO-27: If project-related construction will affect aquatic areas and if regulatory agency approval allows, qualified biologists shall conduct a preconstruction survey for western pond turtle in aquatic areas where construction will occur. The qualified biologists shall capture and relocate any western pond turtle (if present) or other sensitive aquatic species to suitable habitat outside of the area of impact. A letter of permission will be obtained from the California Department of Fish and Wildlife to relocate western pond turtle and other species of special concern from work areas encountered during construction within the Biological Study Area as necessary.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also compensate for potential impacts on western pond turtle habitat. No additional compensatory mitigation is proposed.

Cooper's Hawk and White-Tailed Kite

Active bird nests protected by California Fish and Game Code Sections 3503 and 3503.5, as well as the Migratory Bird Treaty Act will be avoided through the implementation of **Standard Measure BIO-1** in Chapter 1, *Proposed Project* and the following measures:

AMM BIO-28: If feasible, removal of trees shall be scheduled to occur in the fall and winter (between September 16 and February 1), outside of the typical nesting season.

AMM BIO-29: If any construction activities are proposed to occur during the typical nesting season (February 16 to September 15), a nesting bird survey of the area of disturbance shall be conducted by qualified biologists no more than 2 weeks prior to construction to determine presence/absence of nesting birds within the project area.

AMM BIO-30: If evidence of migratory bird nesting that may be affected by construction activities is discovered, or when birds are injured or killed as a result of construction activities, the contractor shall immediately notify the engineer or biological monitor. At a minimum, a 500-foot radius of the nest shall be designated an environmentally sensitive area for nesting raptors, and a 250-foot radius shall be designated an environmentally sensitive area for other nesting avian species, unless otherwise directed by the Service or the California Department of Fish and Wildlife. Nests, eggs, or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code will not be moved or disturbed until the end of the nesting season or until young fledge, whichever is later, nor would adult birds be killed, injured, or harassed at any time. The environmentally sensitive area shall remain in place until such time that the nest is no longer considered active by the qualified biologist. The Santa Cruz County Regional Transportation Commission shall provide written notification to Caltrans and the resource agencies by the qualified biologist.

AMM BIO-31: If a white-tailed kite nest is identified within the Biological Study Area at any time during the proposed project, the biological monitor shall thoroughly document the species activity and ensure that immediate project activities avoid any impacts to the species. Coordination with the California Department of Fish and Wildlife will be facilitated by the County if necessary to devise a suitable avoidance plan for state-listed nesting bird species. If there is a potential for take, the California Department of Fish and Wildlife shall be contacted immediately, and if deemed necessary by the California Department of Fish and Wildlife a suitable avoidance plan will be developed and implemented for the duration of project activities. A final report summarizing the results of implementation of the avoidance plan will be submitted to the California Department of Fish and Wildlife within 30 days following successful fledging or upon project completion, whichever is sooner.

AMM BIO-32: Vegetation removal in potential nesting habitats shall be monitored and documented by the biological monitor(s) regardless of time of year.

Potential impacts on nesting migratory bird species are anticipated to be temporary. Measures to avoid, minimize, and mitigate impacts on wetland or riparian habitat discussed in Section 2.3.1 (Mitigation Measure BIO-17) can be applied to nesting habitat within the Biological Study Area that could

support nesting migratory bird species. No additional compensatory mitigation is proposed.

Hoary Bat, Pallid Bat, Townsend's Big-Eared Bat, and Other Roosting Bats

AMM BIO-33: A qualified biologist shall conduct preconstruction surveys the year prior to construction for bats species that could be utilizing existing structures or trees for roosting habitat. If bats are identified as utilizing areas within the Biological Study Area for day or night roosting, the qualified biologist shall identify the species of bat present. The biologist(s) conducting the pre-construction surveys shall also identify the nature of the bat utilization of the bridge (i.e., maternity roost, day roost, night roost).

AMM BIO-34: If bat species are identified as roosting in areas that will be affected, prior to construction, a plan to exclude bat species from impact areas shall be prepared. This plan shall discuss methods of eliminating bat access to the identified roosting habitat prior to construction so that bats are not able to return to and occupy the roost. The appropriate timing for exclusion implementation shall be determined upon the species identified as occurring within the project site. Roost areas shall be surveyed by a qualified biologist prior to implementing exclusion methods to ensure that no bats are trapped within. Exclusion methods may include, but are not limited to, wire mesh, spray foam, or fabric placement. This plan shall be submitted to the appropriate regulatory agency for approval.

AMM BIO-35: Demolition of existing structures and vegetation removal shall occur outside of the bat maternity roosting season, typically during the spring and summer months.

AMM BIO-36: If bats cannot be excluded from bat roosts, work activities shall be avoided within 100 feet of active maternity roosts until bat pups have been weaned and are deemed independent by a qualified biologist. Regulatory agencies shall be contacted for additional guidance if roosting bats are observed within the Biological Study Area during construction.

AMM BIO-37: A qualified biologist shall be present periodically during construction activities to monitor the bat populations, which may be utilizing the bridge and to ensure that all practicable measures are employed to avoid incidental disturbance to special-status bat species. Monitoring would be timed to occur during key construction events (e.g., removal of existing structures or trees with roosting habitat).

Mitigation Measure BIO-38: If project-related impacts permanently affect a major roost location, compensatory mitigation would be required. Compensatory mitigation shall include replacement of suitable habitat that follows the guidance included within *Caltrans Bat Mitigation: A Guide to*

Developing Feasible and Effective Solutions (H.T. Harvey and Associates 2019).

San Francisco Dusky-Footed Woodrat

AMM BIO-39: No more than 14 days prior to construction activities, a preconstruction survey will be conducted within the Biological Study Area by a qualified biologist in suitable habitat to determine the presence or absence of woodrat middens.

AMM BIO-40: If woodrat middens are located during the preconstruction survey, the qualified biologist shall establish a minimum 25-foot buffer around each midden that can feasibly be avoided by project activities.

AMM BIO-41: If project activities cannot avoid affecting the middens, then a qualified biologist shall dismantle the middens by hand prior to grading or vegetation removal activities. The midden dismantling shall be conducted such that the midden material is slowly removed looking for young woodrats. The material shall be placed in a pile at the closest adjacent undisturbed habitat and more than 50 feet from construction activities.

AMM BIO-42: If young are encountered during midden dismantling, the dismantling activity shall be stopped and the material replaced back on the nest and the nest shall be left alone and rechecked weekly to see if the young are out of the nest or capable of being independent without relying on adult care (as determined by a qualified biologist); once the young are determined to be independent, the nest dismantling can continue.

References

SWCA Environmental Consultants. 2022. Natural Environmental Study. For the State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project. Santa Cruz County. September.

2.3.5 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the federal Endangered Species Act (16 U.S. Code Section 1531 et seq.; 50 Code of Federal Regulations Part 402). This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the Federal Endangered Species Act, federal agencies, such as the Federal Highway Administration (and Caltrans, as assigned), are required to consult with the Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a biological opinion with an incidental take statement or a letter of concurrence. Section 3 of the Federal Endangered Species Act defines *take* as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (California Fish and Game Code Section 2050 et seq.). The California Endangered Species Act emphasizes early consultation to avoid potential impacts on rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife is the agency responsible for implementing the California Endangered Species Act. California Fish and Game Code Section 2080 prohibits take of any species determined to be an endangered species or a threatened species. *Take* is defined in California Fish and Game Code Section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the Federal Endangered Species Act and the California Endangered Species Act requiring a biological opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to the California Endangered Species Act species by issuing a consistency determination under California Fish and Game Code Section 2080.1.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and continental shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish

within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, continental shelf fishery resources, and fishery resources in special areas.

Affected Environment

The information in this section summarizes the Natural Environment Study prepared for the project in September 2022. A Habitat Assessment for Santa Cruz Long-Toed Salamander was conducted in May 2020; information from that assessment is incorporated into the Natural Environment Study. Chapter 4 contains a summary of regulatory agency coordination and correspondence to date.

The California Natural Diversity Database documents the special-status animal taxa (federally listed, state-listed, California fully protected, a species of special concern, California Natural Diversity Database special animals, and/or protected by the Migratory Bird Treaty Act and the California Department of Fish and Wildlife) occurring within the project region (Table 2-62). In addition to species already included in the California Natural Diversity Database search, the official federal species list received from the Service included the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax trailii extimus*).

The official federal species list received from National Marine Fisheries Service included green sturgeon southern distinct population segment (*Acipenser medirostris*), south-central California coast distinct population segment steelhead (*Onchorhynchus mykiss irideus* pop. 9), eulachon (*Thaleichthys pacificus*), and longfin smelt (*Spirinchus thaleichthys*). These species were determined to have no potential or are not expected to occur due to the lack of suitable habitat.

There are seven special-status species with potential to occur in the Biological Study Area: California red-legged frog, Santa Cruz long-toed salamander, southwestern willow flycatcher, least Bell's vireo, Central California coast steelhead distinct population segment, tidewater goby, and monarch butterfly. None of these species were observed in the Biological Study Area during the survey effort, but they have potential to occur in or near the Biological Study Area. Although not yet listed, the Monarch butterfly is a candidate for endangered species listing and is discussed in this section.

Table 2-62 identifies the names and legal status of each of the regionally occurring special-status species. Table 2-62 also identifies a general description of the habitat requirements for each species and a determination as to whether suitable habitat is present, whether the species is present, and whether the Biological Study Area is within a federally designated critical habitat unit. The rationale section summarizes the potential for each taxon to

occur in the Biological Study Area or be affected by the project. Species that do not have habitat present are not discussed in Table 2-62.

Table 2-62. Threatened and Endangered Species

Common Name	Scientific Name	Status	Habitat Present/Absent	Rationale and Effect Finding
Monarch butterfly	<i>Danaus plexippus</i>	Federal Candidate	Habitat Present	May occur. Suitable eucalyptus woodland is present in the Biological Study Area. No California Natural Diversity Database occurrence records are known from within 2 miles of the Biological Study Area. Avoidance and minimization measures included in Chapter 2.3.4. May affect, but not likely to adversely affect.
California red-legged frog	<i>Rana draytonii</i>	Federal Threatened/ State Species of Special Concern	Habitat Present (Marginal)	May occur. The Biological Study Area contains marginally suitable aquatic and upland habitat. No California Natural Diversity Database occurrence records are known from within 2 miles of the Biological Study Area. Avoidance and minimization measures included in Chapter 2.3.4. May affect, and is likely to adversely affect.
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum croceum</i>	Federal Endangered/ State Endangered, Fully Protected	Habitat Present (outside of Biological Study Area)	Not likely to occur. Occupied habitat is present at the Valencia Lagoon adjacent to the Biological Study Area, but is absent from the Biological Study Area. The fence between the Biological Study Area and Valencia Lagoon will be repaired prior to project commencement, so it is not anticipated that this species would occur in the Biological Study Area. Thirteen California Natural Diversity Database records are known from within 2 miles of the Biological Study Area. Avoidance and minimization measures included in Chapter 2.3.4. No effect.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Federal Endangered/ State Endangered	Habitat Present (Marginal)	Not likely to occur. Suitable riparian habitat is present, but the Biological Study Area lacks the density required for this species. No California Natural Diversity

Common Name	Scientific Name	Status	Habitat Present/Absent	Rationale and Effect Finding
				Database occurrence records are known from within 2 miles of the Biological Study Area. May affect, but not likely to adversely affect.
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Federal Endangered/ State Endangered, State Species of Special Concern	Habitat Present (Marginal)	Not likely to occur. This species is not known to occur in the Biological Study Area. Suitable nesting habitat is absent from the Biological Study Area. No California Natural Diversity Database occurrence records are known from within 2 miles of the Biological Study Area. May affect, but not likely to adversely affect.
Steelhead, Central California coast distinct population segment	<i>Oncorhynchus mykiss</i>	Federal Threatened	Species/ Habitat Present	Present. Steelhead are known to be seasonally present in Aptos and Valencia Creeks. The Biological Study Area is located within designated critical habitat for the Central California coast distinct population segment steelhead. One California Natural Diversity Database occurrence record is known from within 2 miles of the Biological Study Area. The California Natural Diversity Database record occurrence, recorded in 1985, is located in Aptos Creek within the Biological Study Area (CDFW 2021a). Avoidance and minimization measures included in Chapter 2.3.4. May affect, and likely to adversely affect.
Tidewater goby	<i>Eucyclogobius newberryi</i>	Federal Endangered	Habitat Present	Not likely to occur. Suitable breeding habitat is absent from the Biological Study Area, but suitable aquatic habitat is present just downstream of the Biological Study Area. One California Natural Diversity Database record occurrence documented in 2014 is located in Aptos Creek within the Biological Study Area (CDFW 2021a). Avoidance and minimization measures included in Chapter 2.3.4. May affect, and likely to adversely affect.

Monarch Butterfly

Monarch butterfly overwintering habitat is declining and considered rare under State CEQA Guidelines Section 15380, and the species is a candidate for listing under the Federal Endangered Species Act and is included on the California Department of Fish and Wildlife Special Animals List. The Biological Study Area is within the known range of overwintering monarch butterfly populations and marginally suitable habitat is present within the eucalyptus woodland along the southern portion where the Santa Cruz Branch Rail Line crosses State Route 1. California Natural Diversity Database occurrence records of the species are absent from within two miles of the Biological Study Area, and monarch butterfly was not observed during biological surveys of the Biological Study Area.

Monarch butterflies occur primarily as migrating individuals in the vicinity of the Biological Study Area. Project activities are not anticipated to have significant impacts on migrating individuals. There are 31 known overwintering populations in Santa Cruz County, and none are in or adjacent to the project area. The nearest known overwintering sites are one located 0.75 miles northwest and one located 0.5 mile to the south of the project area (Xerces Society Western Monarch Count 2022).

California Red-Legged Frog

The California red-legged frog is federally listed as threatened and state listed as a species of special concern. California red-legged frogs were not observed during reconnaissance surveys and no California Natural Diversity Database occurrence records of the species are known from within 2 miles of the Biological Study Area. However, the Biological Study Area contains both suitable upland and aquatic dispersal habitat for California red-legged frog within riparian areas in the Biological Study Area, but lacks breeding habitat (suitable pools and emergent vegetation). Although California red-legged frog has not been observed in the Biological Study Area during reconnaissance surveys, there is suitable habitat and California red-legged frog presence in the Biological Study Area is inferred.

Santa Cruz Long-Toed Salamander

The Santa Cruz long-toed salamander is both federally and state listed as endangered, and state listed as a fully protected species. Santa Cruz long-toed salamanders were not observed during any of the surveys, but the species has been well documented at the California Department of Fish and Wildlife Valencia Lagoon, immediately south of the eastern portion of the Biological Study Area. Thirteen California Natural Diversity Database occurrence records of the species are known from within 2 miles of the Biological Study Area, with the Valencia Lagoon population being one of these recorded locations. While suitable habitat for Santa Cruz long-toed salamander is absent from the Biological Study Area, gaps in the current salamander barrier fence could allow individuals to enter the Biological Study

Area immediately south of State Route 1. These individuals would likely desiccate or suffer road mortality. Caltrans and the California Department of Fish and Wildlife plan to repair the gaps in the barrier fence as part of routine maintenance activities and have confirmed that these repairs will be completed prior to the project. Therefore, Santa Cruz long-toed salamander would have no potential to enter the Biological Study Area from the adjacent Valencia Lagoon.

Central California Coast Steelhead

The Central California coast steelhead distinct population segment is federally listed as threatened and the species has designated critical habitat. The Biological Study Area is within the known range of steelhead, and Aptos Creek and Valencia Creek within and upstream of the Biological Study Area are critical habitat. The lower reach of Aptos Creek that flows into the Aptos Lagoon provides habitat for juvenile steelhead downstream of the Biological Study Area. Additionally, steelhead are well documented in nearby tributaries to Monterey Bay, including San Lorenzo River and Soquel Creek.

One California Natural Diversity Database occurrence record of steelhead is documented within a 2-mile radius of the Biological Study Area. The California Natural Diversity Database record occurrence is from Aptos Creek approximately 5 miles upstream of State Route 1. Steelhead individuals have been identified in Aptos Creek and are; therefore, considered present in small numbers within the project area. The species is expected to occur within the segment of Aptos Creek when sufficient water flow or deep pools are present. There is a partial fish barrier at the arch culvert through which Valencia Creek drains under State Route 1 into Aptos Creek. Given the presence of steelhead in Aptos Creek and only a partial barrier at the confluence with Valencia Creek, steelhead are also presumed to be present in Valencia Creek.

Tidewater Goby

One California Natural Diversity Database occurrence record of tidewater goby is documented within a 2-mile radius of the Biological Study Area. The California Natural Diversity Database occurrence documented in 2014 is from Aptos Creek within the Biological Study Area (CDFW 2021a). Critical Habitat Unit SC-7 “Aptos Creek” for this species is located downstream of the Biological Study Area in Aptos Lagoon. Since tidewater goby have been documented in Aptos Lagoon and Aptos Creek, it is inferred that tidewater goby individuals may be present in the downstream section of the Biological Study Area. Tidewater goby was not observed during biological surveys of the Biological Study Area.

Southwestern Willow Flycatcher and Least Bell’s Vireo

The discussion for southwestern willow flycatcher and least Bell’s vireo has been combined because these migratory birds have similar habitat

requirements and similar impact mechanisms. They are both federally and state listed as endangered.

Southwestern willow flycatcher breeds in Southern California and winters in Mexico and farther south. The closest known occurrence is approximately 186 miles southeast of the Biological Study Area in Santa Barbara County (California Natural Diversity Database occurrence #1).

Least Bell's vireo also spends winters in Mexico and farther south, and breeds primarily in Southern California, though historically the Central Valley was considered the center of their breeding range. As of 2006 greater than 99% of the remaining least Bell's vireo population is located in Southern California (Santa Barbara County and south). The Biological Study Area is not within the historic range of this species, but this species' range is currently expanding northward. The closest known occurrence is approximately 16.5 miles southeast of the Biological Study Area in Monterey County and is from 2001 (California Natural Diversity Database occurrence #503). Caltrans coordinated with biologist Jim Greaves (a respected least Bell's vireo biologist) in 2008 for his professional opinion regarding the potential for least Bell's vireo nesting activity in the region of Santa Cruz. Mr. Greaves conducted background research and conducted a site visit of riparian habitats in the region in 2008, and they did not appear to be of the type preferred by least Bell's vireo (Greaves 2008b, as cited in Caltrans 2020).

Southwestern willow flycatcher and least Bell's vireo were included for consideration because they appear on the official Service species list. There are no California Natural Diversity Database records for the species in or near the Biological Study Area, nor are there any known recent nesting records in the vicinity of the Biological Study Area. No southwestern willow flycatchers or least Bell's vireos were observed during reconnaissance surveys of the Biological Study Area.

Riparian habitat within the Biological Study Area is anticipated to provide marginal suitable foraging and breeding habitat for these species. However, due to the distance from known occurrences of these species, there is a low potential to forage and nest within the riparian habitat.

Environmental Consequences

Build Alternative

Monarch Butterfly

Disturbance of occupied monarch overwintering habitat, through pruning, tree removal, or activity near the overwintering habitat during the overwintering period could result in stress, injury, mortality, and/or habitat loss to this species. Indirect impacts to monarch butterflies could result in reduction of potential overwintering habitat, which would require monarch butterflies to find alternative overwintering habitat. As stated above, no

known overwintering sites are located within or adjacent to the project area. Avoidance and minimization measures described below would be implemented to avoid potential impacts.

California Red-Legged Frog

Construction activities including the excavation and installation of fill for bridges or other structures in areas that provide potentially suitable dispersal, foraging, and sheltering habitats for California red-legged frog, have the potential to result in adverse effects on California red-legged frog and its habitat. These activities could result in direct impacts on individuals in the form of injury or mortality, or reduce habitat quality by temporarily removing dispersal habitat and escape cover in areas where such construction activities occur. Construction activities that would involve in-water work could cause temporary and permanent alterations to conditions in Aptos and Valencia Creeks and adjacent channel bank and potentially affect California red-legged frog, if present. Areas with the greatest potential for impacts on California red-legged frog would be along Aptos and Valencia Creeks. As stated in Section 2.1.8, there would be no notable changes in nighttime lighting, and lighting is not anticipated to affect this or other species. The avoidance and minimization efforts described below follow the measures included within the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program, 8-8-10-F-58. The Programmatic Biological Opinion includes measures that would result in the capture, handling, and relocation of California red-legged frog, which would be considered take of California red-legged frog. Therefore, the project may affect, and is likely to adversely affect California red-legged frog. No designated critical habitat for California red-legged frog occurs in or near the Biological Study Area. Therefore, there will be no effect on critical habitat for California red-legged frog.

Santa Cruz Long-Toed Salamander

No project-related construction activities would occur within Valencia Lagoon or within upland habitat areas. The repairs to the fence separating the Valencia Ecological Preserve from the State Route 1 right-of-way would be completed prior to the start of project activities and are anticipated to prevent individual Santa Cruz long-toed salamander from entering the area of construction. Therefore, with implementation of the avoidance measure below there would be no impacts on this species.

Central California Coast Steelhead

Construction activities involving in-water work and dewatering could result in direct injury or mortality, if steelhead are present in the Biological Study Area. Construction activities including the excavation and installation of fill for bridges or other structures would result in the permanent loss of habitat and degradation through reduced canopy coverage and loss of overhanging and submerged riparian vegetation. Temporary and permanent impacts on

riparian vegetation would reduce shading and temperature regulation within Aptos and Valencia Creeks, which are critical habitat for Central California coast steelhead.

Dewatering could result in a temporary reduction in the quantity of available aquatic habitat, leading to mortality due to stranding. Dewatering could affect the structure of the streambed, and disrupt movement patterns potentially contributing to reduced fitness and reduced spawning ability and habitat.

Since steelhead are known to inhabit Aptos Creek in the Biological Study Area, construction activities involving in-water work may affect, and is likely to adversely affect steelhead. Therefore, there would be potential for take of the species during any construction activities and dewatering.

In addition, temporary impacts would occur around the exterior of the arch culvert from the construction of the concrete abutments. The channel immediately adjacent to the arch culvert through which Valencia Creek drains under State Route 1 into Aptos Creek would be impacted by access routes and staging of machinery for construction. The arch culvert has been identified as a priority fish passage barrier; therefore, the project would require remediation work at the culvert.

Project activities could result in temporary or permanent impacts on aquatic and riparian habitats along Aptos and Valencia Creeks. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions within Aptos and Valencia Creeks and adjacent channel banks. Project activities could disturb channel bank and bed material and increase the potential for erosion and sediment transport downstream. If erosion did occur, increased suspended sediment load could impair water quality or cover streambed substrate downstream of the Biological Study Area. Water quality degradation resulting from project activities could potentially affect steelhead habitat. The use of mechanized equipment could also lead to the unintentional release of fuels, lubricants, solvents, or other pollutants into the channel, affecting water quality. Additionally, riparian habitat in the Biological Study Area provides cover to Aptos and Valencia Creeks, providing adequate shade to maintain water temperatures during summer months in the channel. Removal of the existing bridge support structures immediately adjacent to Aptos Creek would result in long-term improvements to Central California coast steelhead critical habitat. In addition, the Valencia Creek Culvert is a known fish passage barrier, and will be remediated as part of the project. Improvements to fish passage would be a benefit to this species.

Tidewater Goby

Tidewater goby has potential to occur in Aptos Creek within the Biological Study Area; however, it is unexpected because the reaches of Aptos and Valencia Creeks within the Biological Study Area are upstream from the

preferred brackish lagoon habitat. Impacts on tidewater goby could occur in the wetted portion of Aptos Creek within and immediately downstream of the Biological Study Area from construction activities. Therefore, potential impacts on habitat for tidewater goby would be the same as impacts on waters of the U.S., as described in “Section 2.3.2, Wetlands and Other Waters”.

In the unlikely event that tidewater goby is present in the Biological Study Area, construction activities involving in-water work and dewatering could result in direct injury or mortality. Construction activities including the excavation and installation of fill for bridges or other structures would result in the permanent loss of tidewater goby habitat. Dewatering could result in a temporary reduction in the quantity of available aquatic habitat, leading to mortality due to stranding. Dewatering could indirectly affect tidewater goby downstream through altered water flows in the creek and potential releases of sediment, which could affect tidewater goby habitat. Avoidance and minimization measures described below would be implemented. However, relocation of tidewater goby, if required, would result in take of this species.

Southwestern Willow Flycatcher and Least Bell's Vireo

As proposed, the project would permanently affect 0.081 acre of riparian habitat and temporarily affect 1.471 acres of riparian habitat, which could be utilized by least Bell's vireo and southwestern willow flycatcher for nesting or foraging purposes. Impacts on active nests belonging to southwestern willow flycatcher and least Bell's vireo could occur within riparian habitat in the Biological Study Area from construction activities. Indirect effects including project-related noise and vibration generated from nearby construction activities may disrupt nesting or foraging activity.

No-Build Alternative

The No-Build (No-Action) Alternative would not result in habitat modifications or disturbances. Therefore, there would be no impacts on the threatened or endangered species discussed above. However, under the No-Build Alternative, temporary fish passage at Valencia Creek would not be constructed and the area would continue to present a barrier to fish passage. Remediation would be delayed for several years until a permanent solution is constructed.

Avoidance, Minimization, and/or Mitigation Measures

Monarch Butterfly

AMM BIO-43: If feasible, avoid eucalyptus tree removal or other disturbance of eucalyptus habitat from October 1 to March 1 to avoid potential impacts on winter roosting monarch butterflies.

AMM BIO-44: If construction activities are scheduled to impact occur within potentially suitable monarch butterfly overwintering habitat between November October 1 and March 1, a qualified biologist shall conduct pre-construction surveys for overwintering monarch butterflies in appropriate habitat. If an active roost or aggregation is present, any construction grading, or other development within 100 feet of the active roost, shall be prohibited between October 1 and March 1. Consult with the Service if monarch butterfly roosts are observed and avoidance is not feasible.

California Red-Legged Frog

The following measures are provided by the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program, 8-8-10-F-58. These measures have been included exactly as they are shown within the Programmatic Biological Opinion.

AMM BIO-45: Only the Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frog.

AMM BIO-6: Ground disturbance will not begin until written approval is received from the Service that the biologist is qualified to conduct the work.

AMM BIO-47: A Service-approved biologist will survey the project area 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work activities begin. The Service-approved biologist will relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and will not be affected by the activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable. Coordination with the Service shall occur with regard to the relocation site prior to the capture of any California red-legged frogs.

AMM BIO-48: Before any construction activities begin, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California red-legged frog and its habitat, the specific measures to be implemented to conserve the California red-legged frog during the project, and all project boundary limits. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer questions.

AMM BIO-49: A Service-approved biologist will be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of the habitat has been completed. After

this time, the state or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in AMM BIO-49 and in the identification of California red-legged frog. If the monitor or the Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected to a degree that exceeds the levels anticipated by the Federal Highway Administration and the Service during the review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the effect immediately or require that all actions that are causing these effects be halted. If work is stopped, the Service will be notified as soon as is reasonably possible.

AMM BIO-50: During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

AMM BIO-51: All refueling, maintenance, and staging of equipment and vehicles will occur at least 100 feet from the riparian habitat or waterbodies and not in a location from which a spill would drain directly toward aquatic habitat. The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the Federal Highway Administration will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

AMM BIO-52: Habitat contours will be returned to their original configuration at the end of the project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Service and the Federal Highway Administration determine that it is not feasible, or modification of original contours would not benefit the California red-legged frog.

AMM BIO-53: The number of access routes, size of staging areas, and the total area of activity will be limited to the minimum necessary to achieve the project goal. Environmentally sensitive areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction and minimize the impact on California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.

AMM BIO-54: Caltrans (or the local sponsor) will attempt to schedule work activities for times of the year when impacts on the California red-

legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and informal consultation between Caltrans and the Service during project planning shall be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.

AMM BIO-55: To control sedimentation during and after project implementation, Caltrans and sponsoring agency will implement Best Management Practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the specific project. If Best Management Practices are ineffective, Caltrans will attempt to attempt to remedy the situation immediately, in consultation with the Service.

AMM BIO-56: If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. The methods and materials used in any dewatering will be determined by Caltrans in consultation with the Service on a site-specific basis. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the streambed will be minimized to the maximum extent possible; any imported material will be removed from the streambed upon completion of the project.

AMM BIO-57: Unless approved by the Service, water will not be impounded in a manner that may attract California red-legged frogs.

AMM BIO-58: A U.S. Fish and Wildlife Service-approved biologist will permanently remove any individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), crayfish, and centrarchid fishes from the project area to the maximum extent possible. The Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

AMM BIO-59: If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the California red-legged frog, these areas will not be included in the amount of total habitat permanently disturbed.

AMM BIO-60: To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice

developed by the Declining Amphibian Populations Task Force will be followed at all times.

AMM BIO-61: Project sites will be revegetated with an assemblage of native riparian, wetlands, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. These measures will be implemented in all areas disturbed by activities associated with the project, unless the Service and Caltrans determine that it is not feasible or practical.

AMM BIO-62: Caltrans will not use herbicides as the primary method used to control invasive, exotic plants. However, if Caltrans determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the California red-legged frog:

- a. Caltrans will not use herbicides during the breeding season for the California red-legged frog.
- b. Caltrans will conduct surveys for the California red-legged frog immediately prior to the start of any herbicide use. If found, California red-legged frogs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur.
- c. Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster or Rodeo.
- d. Licensed and experienced Federal Highway Administration staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster or Rodeo where large monoculture stands occur at an individual project site.
- e. All precautions will be taken to ensure that no herbicide is applied to native vegetation.
- f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).
- g. Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour.
- h. No herbicides will be applied within 24 hours of forecasted rain.
- i. Application of all herbicides will be done by a qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. Environmental

Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.

- j. All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or waterbodies in a location where a spill would not drain directly toward aquatic habitat. Caltrans will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Upon completion of any project for which this programmatic consultation is used, Caltrans will ensure that a Project Completion Report is completed and provided to the Ventura Fish and Wildlife Office. Caltrans should include recommended modification of the protective measures if alternative measures would facilitate compliance with the provisions of this consultation. In addition, Caltrans will reinitiate formal consultation in the event any of the following thresholds are reached as a result of projects conducted under the provisions of this consultation:

Caltrans will reinitiate consultation when, as a result of projects conducted under the provisions of this consultation:

- a. 10 California red-legged frog adults or juveniles have been killed or injured in a given year (for this and all other standards, an egg mass is considered to be one California red-legged frog)
- b. 50 California red-legged frogs have been killed or injured in total
- c. 20 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in any given year
- d. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in total
- e. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in any given year
- f. 500 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in total

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also

compensate for potential impacts on California red-legged frog habitat. A Section 7 formal consultation will also be conducted for all federally listed species that could be affected by the proposed project. No additional compensatory mitigation is proposed.

Santa Cruz Long-Toed Salamander

AMM BIO-63: At the request of California Department of Fish and Wildlife and to ensure take avoidance, the project proponent will retain a qualified biologist to conduct 2 years of preconstruction surveys according to Service protocol surveys for Santa Cruz long-toed salamander conducted the seasons prior to project construction.

AMM BIO-64: Prior to the initiation of work adjacent to the Valencia Ecological Preserve, the project proponent will install high-visibility construction exclusion fencing along the outside of the Preserve's exclusion fence to make the limits of the project and construction visually obvious.

Central California Coast Steelhead

Measures to avoid or minimize impacts to riparian areas and other waters, discussed in Section 2.3.2, Wetlands and Other Waters can be applied to aquatic habitats within the Biological Study Area that could support steelhead or their critical habitat. In addition, the following measures will be implemented to further avoid or minimize impacts on steelhead:

AMM BIO-65: If in-stream work is proposed to occur in coastal streams, incidental take authorization from NOAA Fisheries shall be acquired through a Section 7 biological opinion and incidental take statement.

AMM BIO-66: If in-stream work is required at the confluence of Aptos Creek and Valencia Creek, remediation of the structural barrier to fish passage will be addressed. Santa Cruz County Regional Transportation Commission and Caltrans will coordinate with the California Department of Fish and Wildlife to comply with Senate Bill 857, SHC section 156.3, and SHC section 156.4.

AMM BIO-67: A component including a description of Central California coast steelhead, its ecology, and the need for conservation of the species will be integrated into the worker environmental training program.

AMM BIO-68: If dewatering/stream diversion is necessary, a diversion and dewatering plan shall be prepared and implemented to allow for passage of aquatic species through the site during construction. The form and function of all pumps used during the dewatering activities shall be checked twice daily, at a minimum, by the biological monitor(s) to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.

AMM BIO-69: During project activities, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.2-inch wire mesh to prevent steelhead and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area.

AMM BIO-70: During dewatering/diversion activities, or if tidal fluctuations breach a formerly dewatered and isolated project site, a National Marine Fisheries Service-approved biological monitor(s) or other National Marine Fisheries Service-approved biologist(s) shall supervise site dewatering and relocate steelhead and other stranded aquatic species.

AMM BIO-71: If it is determined by the biological monitor(s) or the National Marine Fisheries Service-approved biologist(s) that impacts to steelhead would have the potential to exceed the levels authorized by National Marine Fisheries Service, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will resolve the situation immediately by eliminating the cause of the identified effect on the species or require that all actions that are causing these effects be halted until coordination with the appropriate resource agency is completed. No work will resume until the issue is resolved.

AMM BIO-72: Following construction, temporary impacts on streamside vegetation used as sheltering areas or streambed sandbars, gravels, and cobbles used by fish species will be restored to their preconstruction conditions, at a minimum.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also compensate for potential impacts on aquatic areas within the Biological Study Area that could support steelhead. Section 7 formal consultation will be conducted for all federally listed species that could be affected by the proposed project. No additional compensatory mitigation is proposed.

Mitigation Measure BIO-73: Additionally, the fish passage barrier associated with the hydraulic drop and sheet flow over the concrete apron at the outlet of the culvert at post mile 9.97 will be improved for the benefit of fish passage. Caltrans will implement a phased approach to correcting fish passage in Valencia Creek at post mile 9.97 and post mile 9.88. This project, EA 05-0C734, will complete short-term, or partial, improvements to fish passage. Then project EA 05-1N900 (Valencia Creek Fish Passage) will follow up with long-term remediation of the fish passage issues at post mile 9.97 and post mile 9.88, which will be funded through the state SHOPP program.

The following mitigation is proposed immediately downstream of the arch culvert to address fish passage issues as part of the short-term improvements required for impacts from this project. Design plans for remediation work will be included with project designs and based on coordination with the California Department of Fish and Wildlife and National Marine Fisheries Service.

1. The existing baffle fishway in the arch culvert, which consists of dividing walls and baffles, would be extended to the downstream edge of the concrete outlet apron. This will confine the flows and achieve the desired hydraulic conditions at the outlet apron for fish passage. The extended dividing walls and baffles would be constructed of timber and, if necessary, concrete to achieve the same hydraulic performance as the existing baffles. Additionally, an outlet baffle shall be placed at

the most downstream bay of the extended baffle system. This will concentrate plunging flows off the lip of the concrete outlet apron and maximize water depths in the most downstream bay of the fishway. This is where fish would be expected to complete their leap from downstream into the arch culvert, thus, improving fish passage.

2. To promote pool development and maintenance immediately downstream of the outlet apron, a starter channel would be excavated and boulder-root wad combinations would be installed in the upstream area immediately adjacent to the opening of the arch culvert. The boulder-root wad combinations would be installed at an appropriate elevation so that some of the instream woody material would remain submerged below the water surface where it would provide instream cover for fish across a range of flow conditions. By constricting the channel slightly and adding roughness, the boulder-root wad combinations would help to maintain pool water surface elevations and depth immediately downstream of the outlet apron (arch culvert), thereby creating more favorable conditions for adult and juvenile fish to access the fishway, thus improving fish passage.

Tidewater Goby

Measures to avoid or minimize impacts to riparian areas and other waters, discussed in Section 2.3.2, Wetlands and Other Waters, can be applied to aquatic areas within the Biological Study Area that could support tidewater goby. In addition, the following measures will be implemented to further avoid or minimize impacts on tidewater goby:

AMM BIO-74: If in-stream work is proposed to occur Aptos Creek, incidental take authorization from the Service through a Section 7 biological opinion and incidental take statement shall be acquired, if deemed necessary by the Service. Formal consultation with the Service may be necessary if a Section 404 permit is issued.

AMM BIO-75: A component including a description of tidewater goby, its ecology, and the need for conservation of the species will be integrated into the worker environmental training program.

AMM BIO-76: Prior to construction, if it is necessary to dewater/divert areas within Aptos Creek prior to project implementation, a Service-approved biologist shall conduct a preconstruction survey for tidewater goby and use seining, dip-nets, or other approved methods to capture and relocate tidewater goby from the areas to be dewatered to areas with suitable habitat outside of the area of proposed disturbance.

AMM BIO-77: If dewatering/stream diversion is necessary, a diversion and dewatering plan shall be prepared and implemented to allow for passage of aquatic species through the site during construction. The form and

function of all pumps used during the dewatering activities shall be checked twice daily, at a minimum, by the biological monitor(s) to ensure a dry work environment and minimize adverse effects on aquatic species and habitats.

AMM BIO-78: During project activities, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.2-inch wire mesh to prevent tidewater goby and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area.

AMM BIO-79: During dewatering/diversion activities, or if tidal fluctuations breach a formerly dewatered and isolated project site, the Service-approved biological monitor(s) or other Service-approved biologist(s) shall supervise site dewatering and relocate tidewater goby and other stranded aquatic species.

AMM BIO-80: If it is determined by the biological monitor(s) or the Service-approved biologist(s) that impacts on tidewater goby have the potential to exceed the levels authorized by the Service, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation immediately by eliminating the cause of the identified effect on the species or require that all actions that are causing these effects be halted until coordination with the appropriate resource agency is completed. No work will resume until the issue is resolved.

AMM BIO-71: Following construction, temporary impacts on streamside vegetation used as sheltering areas or streambed sandbars, gravels, and cobbles used by fish species will be restored to their preconstruction conditions, at a minimum.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also compensate for potential impacts on aquatic areas within the Biological Study Area that could support tidewater goby. Section 7 formal consultation will be conducted for all federally listed species that could be affected by the proposed project. No additional compensatory mitigation is proposed.

Southwestern Willow Flycatcher and Least Bell's Vireo

The following measures would be implemented to avoid and minimize potential effects on least Bell's vireo and southwestern willow flycatcher.

AMM BIO-81: Focused surveys following the Service survey guidelines for least Bell's vireo and southwestern willow flycatcher will be completed to

determine the presence/absence of least Bell's vireo and southwestern flycatcher wherever suitable habitat is present within 500 feet of the limits of construction. Surveys will be conducted within 1 year prior to the onset of construction activities. If least Bell's vireo or southwestern willow flycatcher are detected during these surveys, formal Section 7 consultation will be reinitiated.

AMM BIO-82: Caltrans will provide the Service with a report detailing least Bell's vireo and southwestern flycatcher survey efforts for the breeding season preceding construction.

AMM BIO-83: Worker awareness trainings and educational materials will include information about least Bell's vireo and southwestern willow flycatcher and their habitat.

In addition to those measures above, the following measures would be implemented to avoid and minimize potential effects on nesting migratory birds, including least Bell's vireo and southwestern willow flycatcher, if present:

AMM BIO-84: If feasible, removal of trees shall be scheduled to occur in the fall and winter (between September 15 and February 1), outside of the typical nesting season.

AMM BIO-85: If any construction activities are proposed to occur during the typical nesting season (February 1 to September 15), a nesting bird survey of the area of disturbance shall be conducted by qualified biologists no more than 2 weeks prior to construction to determine presence/absence of nesting birds within the project area.

AMM BIO-86: If evidence of migratory bird nesting that may be affected by construction activities is discovered, or when birds are injured or killed as a result of construction activities, the contractor shall immediately notify the engineer or biological monitor. At a minimum, a 500-foot radius of the nest shall be designated an environmentally sensitive area for nesting raptors, and a 250-foot radius shall be designated an environmentally sensitive area for other nesting avian species, unless otherwise directed by the Service or the California Department of Fish and Wildlife. Nests, eggs, or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code would not be moved or disturbed until the end of the nesting season or until young fledge, whichever is later, nor would adult birds be killed, injured, or harassed at any time. The environmentally sensitive area shall remain in place until such time that the nest is no longer considered active by the qualified biologist. Written notification shall be provided to Caltrans, the Santa Cruz County Regional Transportation Commission, and the resource agencies by the qualified biologist.

AMM BIO-87: If least Bell's vireo and/or southwestern willow flycatcher are identified within the Biological Study Area at any time during the proposed project, the biological monitor shall thoroughly document the species activity and ensure that immediate project activities avoid any impacts on the species. If there is a potential for take, the Service shall be contacted immediately to ensure that avoidance of take is maintained throughout the duration of project activities.

AMM BIO-88: Vegetation removal in potential nesting habitats shall be monitored and documented by the biological monitor(s) regardless of time of year.

Mitigation Measure BIO-17: Compensatory mitigation proposed for impacts on aquatic habitats as described in Section 2.3.1 would also compensate for potential impacts on habitat within the Biological Study Area that could support nesting least Bell's vireo and/or southwestern willow flycatcher. No additional compensatory mitigation is proposed.

References (modified for the final environmental document to include newly added references):

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California Department of Fish and Game. 2002. Culvert criteria for fish passage. Available:
https://www.fs.usda.gov/biology/nsaec/fishxing/fplibrary/CDFG_2002_Culvert_Criteria_for_Fish_Passage.pdf. Accessed November 1, 2023.

Bryan Mori Biological Consulting Services. 2021. Santa Cruz Long-Toed Salamander Site Assessment. For the Caltrans Highway 1 State Park Drive to Freedom Boulevard Auxiliary Lanes and Bus-on-Shoulder Project. Watsonville. Letter report. January 6.

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Taylor, R and M. Love. 2004. Fish Passage Evaluation at Stream Crossings. Part IX of California Salmonid Stream Habitat Restoration Manual.

March. California Dept. of Fish and Game, Sacramento, CA. 100 pages.

Xerces Society Western Monarch Count. 2022. Western Monarch Thanksgiving Count and New Year's Eve Count Data, 1997-2021.

2.3.6 Invasive Species

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The Executive Order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of NEPA analysis for a proposed project.

Affected Environment

The information in this section summarizes the Natural Environment Study prepared for the project in September 2022 (SWCA Environmental Consultants).

A total of 64 exotic, invasive plant species as identified by the California Invasive Plant Council Inventory were observed in the Biological Study Area. A total of 27 of these plants have an invasiveness rating of Limited, 25 plants have an invasiveness rating of Moderate, and 8 plants have an invasiveness rating of High including red brome (*Bromus madritensis* ssp. *rubens*), iceplant (*Carpobrotus edulis*), pampas grass (*Cortaderia jubata*), cape ivy (*Delairea odorata*), fennel (*Foeniculum vulgare*), French broom (*Genista monspessulana*), and English ivy. Additionally, 4 plants identified in the Biological Study Area are on the “Watch List.” A full list of plant species encountered in the Biological Study Area, including invasive plants, is below in Table 2-63, List of Plant Species Observed.

Table 2-63. List of Plant Species Observed

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Acacia dealbata</i>	silver wattle	Fabaceae	exotic/California Invasive Plant Council moderate
<i>Acacia longifolia</i>	Sydney golden wattle	Fabaceae	exotic
<i>Acacia melanoxylon</i>	blackwood acacia	Fabaceae	exotic/California Invasive Plant Council limited
<i>Agapanthus praecox</i>	African lily or lily of the Nile	Liliaceae	exotic

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Ageratina adenophora</i>	sticky snakeroot	Asteraceae	exotic/California Invasive Plant Council moderate
<i>Allium triquetrum</i>	three cornered leek	Alliaceae	exotic
<i>Anthemis cotula</i>	dog fennel	Asteraceae	exotic
<i>Arbutus unedo</i>	strawberry tree	Ericaceae	exotic
<i>Avena barbata</i>	slender wild oat	Poaceae	exotic/California Invasive Plant Council moderate
<i>Avena fatua</i>	common wild oat	Poaceae	exotic/California Invasive Plant Council moderate
<i>Bellis perennis</i>	English lawn daisy	Asteraceae	exotic
<i>Betula papyrifera</i>	paper birch	Betulaceae	exotic
<i>Borago officinalis</i>	common borage	Boraginaceae	exotic
<i>Brassica nigra</i>	black mustard	Brassicaceae	exotic/California Invasive Plant Council moderate
<i>Brassica rapa</i>	rape mustard	Brassicaceae	exotic/California Invasive Plant Council limited
<i>Briza maxima</i>	big rattlesnake grass	Poaceae	exotic/California Invasive Plant Council limited
<i>Briza minor</i>	little rattlesnake grass	Poaceae	exotic
<i>Bromus catharticus</i>	rescue grass	Poaceae	exotic
<i>Bromus diandrus</i>	ripgut brome	Poaceae	exotic/California Invasive Plant Council moderate
<i>Bromus hordeaceus</i>	Soft chess brome	Poaceae	exotic/California Invasive Plant Council limited
<i>Bromus madritensis</i> ssp. <i>rubens</i>	red brome	Poaceae	exotic/California Invasive Plant Council high
<i>Calendula arvensis</i>	field marigold	Asteraceae	exotic
<i>Campsis radicans</i>	trumpet creeper	Bignoniaceae	exotic
<i>Capsella bursa-pastoris</i>	shepherd's purse	Brassicaceae	exotic
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae	exotic/California Invasive Plant Council moderate
<i>Carpobrotus edulis</i>	iceplant	Aizoaceae	exotic/California Invasive Plant Council high

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Scientific Name</i>	Common Name	Family	exotic/California Invasive Plant Council Status
<i>Cedrus deodara</i>	Deodar cedar	Pinaceae	exotic
<i>Centranthus ruber</i>	red valerian	Valerianaceae	exotic
<i>Cirsium vulgare</i>	bull thistle	Asteraceae	exotic/California Invasive Plant Council moderate
<i>Cistus sp.</i>	rock rose	Cistaceae	exotic
<i>Conium maculatum</i>	poison hemlock	Apiaceae	exotic/California Invasive Plant Council moderate
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae	exotic
<i>Cortaderia jubata</i>	pampas grass	Poaceae	exotic/California Invasive Plant Council high
<i>Cotoneaster franchetii</i>	Francheti cotoneaster	Rosaceae	exotic/California Invasive Plant Council moderate
<i>Cotoneaster integrifolius</i>	entire-leaved cotoneaster	Rosaceae	exotic
<i>Cotoneaster pannosus</i>	silverleaf cotoneaster	Rosaceae	exotic/California Invasive Plant Council moderate
<i>Cotoneaster sp.</i>	cotoneaster	Rosaceae	exotic
<i>Delairea odorata</i>	cape ivy	Asteraceae	exotic/California Invasive Plant Council high
<i>Dimorphotheca ecklonis</i>	blue & white daisybush	Asteraceae	exotic
<i>Echium candicans</i>	pride of Madeira	Boraginaceae	exotic/California Invasive Plant Council limited
<i>Ehrharta erecta</i>	panic veldt grass	Poaceae	exotic/California Invasive Plant Council moderate
<i>Eriobotrya japonica</i>	loquat	Rosaceae	exotic
<i>Erodium botrys</i>	long beaked filaree	Geraniaceae	exotic
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae	exotic/California Invasive Plant Council limited
<i>Escallonia rubra</i>	red claws	Grossulariaceae	exotic
<i>Eucalyptus globulus</i>	blue gum	Myrtaceae	exotic/California Invasive Plant Council limited
<i>Euphorbia peplus</i>	petty spurge	Euphorbiaceae	exotic

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Festuca myuros</i>	rattail fescue	Poaceae	exotic/California Invasive Plant Council moderate
<i>Festuca perennis</i>	Italian ryegrass	Poaceae	exotic/California Invasive Plant Council moderate
<i>Foeniculum vulgare</i>	fennel	Apiaceae	exotic/California Invasive Plant Council high
<i>Fumaria capreolata</i>	white ramping fumitory	Papaveraceae	exotic
<i>Gastridium phleoides</i>	nit grass	Poaceae	exotic
<i>Genista monspessulana</i>	French broom	Fabaceae	exotic/California Invasive Plant Council high
<i>Geranium dissectum</i>	cutleaf geranium	Geraniaceae	exotic/California Invasive Plant Council limited
<i>Geranium molle</i>	dove's foot geranium	Geraniaceae	exotic
<i>Geranium robertianum</i>	Robert's geranium	Geraniaceae	exotic
<i>Geranium rotundifolium</i>	roundleaf geranium	Geraniaceae	exotic
<i>Hedera helix</i>	English ivy	Araliaceae	exotic/California Invasive Plant Council high
<i>Helminthotheca echioides</i>	bristly oxtongue	Asteraceae	exotic/California Invasive Plant Council limited
<i>Hesperocyparis macrocarpa</i>	Monterey cypress	Cupressaceae	planted or naturalized
<i>Holcus lanatus</i>	common velvet grass	Poaceae	exotic/California Invasive Plant Council moderate
<i>Hordeum marinum ssp. gussoneanum</i>	seaside barley	Poaceae	exotic/California Invasive Plant Council moderate
<i>Hordeum murinum</i>	foxtail barley	Poaceae	exotic/California Invasive Plant Council moderate
<i>Hypericum calycinum</i>	Aaron's beard	Hypericaceae	exotic
<i>Hypochaeris glabra</i>	smooth cat's ear	Asteraceae	exotic/California Invasive Plant Council limited
<i>Hypochaeris radicata</i>	hairy cat's ear	Asteraceae	exotic/California Invasive Plant Council moderate

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Ilex aquifolium</i>	holly	Aquifoliaceae	exotic/California Invasive Plant Council limited
<i>Juglans hindsii</i>	northern California black walnut	Juglandaceae	planted or naturalized
<i>Lactuca serriola</i>	prickly lettuce	Asteraceae	exotic
<i>Lantana montevidensis</i>	trailing lantana	Verbenaceae	exotic/"watch list"
<i>Lavandula stoechas</i>	French lavender	Lamiaceae	exotic
<i>Ligustrum vulgare</i>	European privet	Oleaceae	exotic
<i>Linum bienne</i>	narrow leaved flax	Linaceae	exotic
<i>Liquidambar styraciflua</i>	sweet gum	Hamamelidaceae	exotic
<i>Lobularia maritima</i>	sweet alyssum	Brassicaceae	exotic/California Invasive Plant Council limited
<i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae	exotic
<i>Lophostemon confertus</i>	Brisbane box	Myrtaceae	exotic
<i>Lysimachia arvensis</i>	scarlet pimpernel	Primulaceae	exotic
<i>Malus domestica</i>	orchard apple tree	Rosaceae	exotic
<i>Marah fabacea</i>	California manroot	Cucurbitaceae	native
<i>Medicago polymorpha</i>	burclover	Fabaceae	exotic/California Invasive Plant Council limited
<i>Medicago sativa</i>	alfalfa	Fabaceae	exotic
<i>Melaleuca citrinus</i>	crimson bottlebrush	Myrtaceae	exotic
<i>Melilotus alba</i>	white sweetclover	Fabaceae	exotic
<i>Melilotus indicus</i>	yellow sweetclover	Fabaceae	exotic
<i>Myoporum laetum</i>	ngaio	Scrophulariaceae	exotic/California Invasive Plant Council moderate
<i>Myosotis latifolia</i>	broadleaf forget-me-not	Boraginaceae	exotic/California Invasive Plant Council limited
<i>Nerium oleander</i>	oleander	Apocynaceae	exotic
<i>Oxalis corniculata</i>	creeping wood sorrel	Oxidalaceae	exotic
<i>Oxalis incarnata</i>	crimson wood sorrel	Oxidalaceae	exotic
<i>Oxalis pes-caprae</i>	Bermuda butercup	Oxidalaceae	exotic/California Invasive Plant Council moderate
<i>Parietaria judaica</i>	spreading pellitory	Urticaceae	exotic
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae	exotic
<i>Paspalum dilatatum</i>	Dallis grass	Poaceae	exotic

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Phalaris aquatica</i>	Harding grass	Poaceae	exotic/California Invasive Plant Council moderate
<i>Phormium tenax</i>	New Zealand flax	Asphodelaceae	exotic
<i>Photinia x fraseri</i>	Fraser's photinia	Rosaceae	exotic
<i>Scientific Name</i>	<i>Common Name</i>	<i>Family</i>	<i>Origin/California Invasive Plant Council Status</i>
<i>Pinus halepensis</i>	Aleppo pine	Pinaceae	exotic
<i>Pittosporum undulatum</i>	Australian cheesewood	Pittosporaceae	exotic
<i>Plantago coronopus</i>	cutleaf plantain	Plantaginaceae	exotic
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae	exotic/California Invasive Plant Council limited
<i>Plantago major</i>	common plantain	Plantaginaceae	exotic
<i>Poa annua</i>	annual bluegrass	Poaceae	exotic
<i>Podranea ricasoliana</i>	pink trumpet vine	Bignoniaceae	exotic
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Poaceae	exotic/California Invasive Plant Council limited
<i>Polypogon viridis</i>	water beard grass	Poaceae	exotic
<i>Populus trichocarpa</i>	black cottonwood	Salicaceae	native
<i>Prunus avium</i>	sweet cherry	Rosaceae	exotic
<i>Prunus cerasifera</i>	cherry plumb	Rosaceae	exotic/California Invasive Plant Council limited
<i>Prunus laurocerasus</i>	cherry laurel	Rosaceae	exotic
<i>Prunus sp.</i>	prunus (ornamental)	Rosaceae	exotic
<i>Pyracantha angustifolia</i>	narrowleaf firethorn	Rosaceae	exotic/California Invasive Plant Council limited
<i>Raphanus sativus</i>	wild radish	Brassicaceae	exotic/California Invasive Plant Council limited
<i>Rosa sp.</i>	garden rose	Rosaceae	exotic hybrid cultivar
<i>Rosmarinus officinalis</i>	rosemary	Lamiaceae	exotic
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae	exotic/California Invasive Plant Council high
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	exotic/California Invasive Plant Council moderate
<i>Rumex crispus</i>	curly leaved dock	Polygonaceae	exotic/California Invasive Plant Council limited

Scientific Name	Common Name	Family	Origin/California Invasive Plant Council Status
<i>Salvia leucantha</i>	Mexican bush sage	Lamiaceae	exotic
<i>Scandix pecten-veneris</i>	shepherd's needle	Apiaceae	exotic
<i>Senecio vulgaris</i>	common groundsel	Asteraceae	exotic
<i>Sequoia sempervirens</i>	coast redwood	Cupressaceae	native
<i>Silybum marianum</i>	milk thistle	Asteraceae	exotic/California Invasive Plant Council limited
<i>Solanum laxum</i>	potato vine	Solanaceae	exotic
<i>Sonchus asper ssp. asper</i>	prickly sow thistle	Asteraceae	exotic
<i>Sonchus oleraceus</i>	common sow thistle	Asteraceae	exotic
<i>Stellaria media</i>	chickweed	Caryophyllaceae	exotic
<i>Stipa miliacea var. miliacea</i>	Smilo grass	Poaceae	exotic/California Invasive Plant Council limited
<i>Taraxacum officinale</i>	dandelion	Asteraceae	exotic
<i>Torilis arvensis</i>	field hedge parsley	Apiaceae	exotic/California Invasive Plant Council moderate
<i>Toxicodendron diversilobum</i>	poison oak	Anacardiaceae	native
<i>Tragopogon porrifolius</i>	purple salsify	Asteraceae	exotic
<i>Trifolium angustifolium</i>	narrow leaf crimson clover	Fabaceae	exotic
<i>Trifolium campestre</i>	hop clover	Fabaceae	exotic
<i>Trifolium hirtum</i>	rose clover	Fabaceae	exotic/California Invasive Plant Council limited
<i>Triticum aestivum</i>	wheat	Poaceae	exotic
<i>Tropaeolum majus</i>	garden nasturtium	Tropaeolaceae	exotic
<i>Ulmus parvifolia</i>	Chinese elm	Ulmaceae	exotic
<i>Veronica persica</i>	bird's eye speedwell	Plantaginaceae	native
<i>Urtica dioica</i>	stinging nettle	Urticaceae	native
<i>Vicia benghalensis</i>	purple vetch	Fabaceae	exotic
<i>Vicia villosa ssp. varia</i>	smooth vetch	Fabaceae	exotic
<i>Vinca major</i>	bigleaf periwinkle	Apocynaceae	exotic/California Invasive Plant Council moderate
<i>Zantedeschia aethiopica</i>	calla lily	Araceae	exotic

Environmental Consequences

Build Alternative

Project activities would disturb invasive plants and soil within the Biological Study Area and could lead to the spread or introduction of invasive plants within the Biological Study Area or elsewhere. The project could spread invasive plant species to areas where they are absent outside of the Biological Study Area if invasive plants removed during clearing, grubbing, and construction are not disposed of or transported correctly. The avoidance and minimization measures described below would minimize the potential for the project to spread or introduce invasive plants within the Biological Study Area or elsewhere.

No-Build Alternative

The No-Build (No-Action) Alternative would not result in site disturbances or other activities that would have the potential to introduce or spread the invasive species discussed above. Therefore, there would be no impacts associated with invasive species.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization efforts are recommended to address invasive species.

AMM BIO-89: To avoid the spread of invasive species, the contractor will stockpile topsoil and redeposit the stockpiled soil on slopes after construction is complete, or transport all topsoil to a certified landfill for disposal.

AMM BIO-90: During construction, the project will make all reasonable efforts to limit the use of imported soils for fill. Soils currently existing on-site should be used for fill material. If the use of imported fill material is necessary, the imported material must be obtained from a source that is known to be free of invasive plant species, or the material must consist of purchased clean material such as crushed aggregate, sorted rock, or similar.

AMM BIO-91: The landscape and restoration planting plans will emphasize the use of native species expected to occur in the area. Project plans will avoid the use of plant species that the California Invasive Plant Council, California Department of Fish and Wildlife (CDFW), or other resource organizations considers to be invasive or potentially invasive. Prior to issuance of grading permits, all project landscape and restoration plans will be verified to ensure that the plans do not include the use of any species considered invasive by the California Invasive Plant Council or the California Department of Fish and Wildlife.

References

SWCA Environmental Consultants. 2022. Natural Environmental Study. For the State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to State Park Dr.—and Coastal Rail Trail Segment 12 Project. San Luis Obispo. September.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative impact assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts on resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They also can contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 Code of Federal Regulations 1508.7.

Approach and Methodology

The information in this section is summarized from the Cumulative Impact Analysis Technical Report prepared for the project in November 2022 (Caltrans 2022), which follows the eight-step cumulative impact analysis methodology developed by the California Department of Transportation (Caltrans) in cooperation with the Federal Highway Administration and the U.S. Environmental Protection Agency.

- Step 1 identifies the resources to consider in the cumulative impact analysis.
- Step 2 defines the resource study area for each resource addressed by the analysis. A Resource Study Area is the geographic area within which impacts on a resource are analyzed. The boundaries of a Resource Study Area are often broader than the boundaries used for project-specific analysis, such as a Biological Study Area. The delineation of the Resource Study Area was based on a review of the documentation of the work that has been accomplished on the project, focusing on technical studies.

- Step 3 assesses the current health and historical context of resources. This assessment was based on a review of the technical studies, as well as the County of Santa Cruz General Plan/Local Coastal Program, the General Plan/Local Coastal Program's Environmental Impact Report, and other data sources documented in the Cumulative Impact Analysis Technical Report.
- Step 4 identifies the direct and indirect impacts of the proposed project that might contribute to a cumulative impact by reviewing the impacts identified in the technical studies for the proposed project. For each impact of the proposed project for the resources identified in Step 1, the specific contributions to cumulative impacts that could result from the proposed project were considered.
- Step 5 requires the identification of current and reasonably foreseeable projects. A list of projects was compiled by first identifying projects listed on the websites of the Town of Aptos, the County of Santa Cruz, and the Governor's Office of Planning and Research's CEQANet database. The Regional Transportation Plan, local general plans and specific plans, and Caltrans Transportation Concept Reports were also consulted to identify projects that have a reasonable probability of being implemented over the next 20 years. Staff members from planning departments of the City of Capitola and the County of Santa Cruz were consulted to assess the likelihood that the projects identified in the respective general plans would be built over the next 20 years and to identify any other reasonably foreseeable projects. Information about the projects, including expected environmental impacts and mitigation, was obtained to the extent available.
- The Step 6 analysis began with a review of the information gathered in Steps 3 through 5 regarding the historical context and current health of each resource included in the Cumulative Impact Analysis Technical Report, the impacts of the proposed project on these resources, and the impacts of reasonably foreseeable future projects on the resources. The next step was to assess, for each resource, whether cumulative impacts exist, whether the identified cumulative impacts could be considered beneficial or adverse, and whether the proposed project would have a considerable contribution to the cumulative impact.
- Step 7 is to document the results of the stepwise cumulative impact analysis process. The activities associated with Step 7 consisted of preparing the analysis in Steps 1 through 6 that are presented in Sections 3 through 6 of the Cumulative Impact Analysis Technical Report.
- Step 8 of the cumulative impact analysis process involves assessing the need for mitigation to address the overall cumulative impact on each resource.

Affected Environment

The information in this section is summarized from the Cumulative Impact Analysis Technical Report prepared for the project in November 2022 (Caltrans 2022).

A list of reasonably foreseeable projects was compiled by first identifying projects listed on the websites of the County of Santa Cruz planning and public works departments and the Governor's Office of Planning and Research's CEQANet database. The Regional Transportation Plan, local general plans and specific plans, and Caltrans Transportation Concept Reports were also consulted to identify projects that have a reasonable probability of being implemented over the next 20 years. Staff members from planning department of the County of Santa Cruz as well as the Santa Cruz County Regional Transportation Commission were consulted to identify any other reasonably foreseeable projects. Information about the projects, including expected environmental impacts and mitigation, was obtained to the extent available. The list of current and reasonably foreseeable projects includes are as follows:

- Trout Gulch Road Storm Damage Repair Project (California Department of Fish and Wildlife 2022)
- Medical Office Building Project County of Santa Cruz 2020)
- Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project (Soquel Creek Water District 2022)
- Dominican Hospital PUD (Dignity Health 2022)
- Arana Sewer Trunk Line Replacement Project (County of Santa Cruz 2021a)
- Valencia Creek Sewer Relocation Project (County of Santa Cruz 2021b)
- Capitola Wharf Renovation (City of Capitola 2020)
- Front St. Riverfront Project (City of Santa Cruz 2020)
- Sustainability Policy and Regulatory Update (County of Santa Cruz 2022)
- 9041 Soquel Drive, Aptos Mixed Use project (County of Santa Cruz 2021)c
- The 41st Avenue to Soquel Drive Auxiliary Lanes Project (Caltrans 2018b)
- State Park Drive to Bay Avenue/Porter Street Auxiliary Lanes Project (Caltrans 2021)
- Sustainability Policy and Regulatory Update (County of Santa Cruz 2022)
- 9041 Soquel Drive, Aptos Mixed Use project (County of Santa Cruz 2021)c
- The 41st Avenue to Soquel Drive Auxiliary Lanes Project (Caltrans 2018b)
1N900 Valencia creek improvement project

A summary of potential impacts from future projects is shown in Table 2-64.

Table 2-64. Summary of Impacts from Future Actions

Visual Resources	Potential impacts include the removal of trees, widened highway cross-section, soundwalls, and retaining walls, ranging from low to moderate-high levels of visual quality change.
Wetlands and Other Waters	Potential impacts include the permanent and temporary loss of wetlands and other waters.
Riparian Forest Natural Community and Riparian Corridors	Potential impacts include the permanent and temporary loss of riparian non-wetlands, including land disturbance and tree removal within areas of riparian forest habitat.
Coast Live Oak Woodland Habitat	Potential impacts include the permanent and temporary loss of oak woodland, including land disturbance and tree removal within areas of oak woodland habitat.
Tidewater Goby	Potential impacts include disturbance of identified tidewater goby habitat or project-induced runoff to identified habitat.
Central California Coast Steelhead	Potential impacts include the disturbance of habitat, runoff to habitat, or changed streamflow.
California Giant Salamander	Potential impacts include the disturbance of habitat.
Santa Cruz Long-Toed Salamander	Because this is a fully-protected species under the California Fish and Game Act, take of this species must be avoided.
California Red-Legged Frog (CRLF)	Potential impacts include the disturbance of habitat.
Foothill Yellow-Legged Frog (FYLF)	Potential impacts include the permanent and temporary loss of habitat.
Santa Cruz black salamander	Potential impacts include the disturbance of habitat.
Western Pond Turtle	Potential impacts include the permanent and temporary loss of habitat.
Cooper's Hawk & White-Tailed Kite	Potential impacts include the permanent and temporary loss of nesting habitat.
Least Bell's Vireo & Southwestern Willow Flycatcher	Potential impacts include any disturbance of brush or trees which may affect habitat.
Monarch Butterfly	Potential impacts include the permanent and temporary loss of overwintering habitat.
Pallid Bat, Townsend's Big-eared Bat, and Hoary Bat	Potential impacts include disturbance or tree removal.
Cultural/Historic Resources	Potential impacts include temporary and permanent removal of rail in Segment 12 of the Coastal Rail Trail.

Resources assessed for cumulative impacts fall into four categories: no potential for cumulative impacts, resources assessed with a projection approach, resources with less-than-significant impacts and in good/stable health, and resources with potential for cumulative impacts.

Resources Assessed with a Projection Approach

The following resources are at risk or are in poor or declining health but were not included in the eight-step cumulative impact analysis because they are addressed in other technical studies in their respective analyses using modeling projections.

- Growth
- Traffic and Transportation
- Air Quality
- Greenhouse Gas Emissions

In a cumulative impacts analysis, the identification of “past, present, and reasonably foreseeable future actions” can use either the “list approach” or the “projection approach.” The list approach identifies specific projects in the vicinity, typically provided by a local planning department. The projection approach or adopted plan approach relies on current general plans, transportation plans, or other planning documents, which by definition account for cumulative growth in a defined area.

For this analysis, the projection approach was used for the assessment of cumulative growth, traffic, air quality, and greenhouse gas emissions. As an example, the Association of Monterey Bay Area Governments’ Regional Travel Demand Model was used to project future build and no-build conditions and is based on planned regional growth, as contained in adopted general plans. The model also accounts for planned growth in nearby areas. For all other resource areas discussed, the list approach is used and takes into consideration past, present, and reasonably foreseeable future actions.

Resources with Less-Than-Significant Impacts and in Good/Stable Health

The following resources have less-than-significant impacts, are currently in good/stable health and when combined with the anticipated impacts of other past, present, and future projects in the area, they would not result in a significant impact. Therefore, these resources are not discussed in this cumulative impact analysis.

- Community Character and Cohesion
- Relocations and Real Property Acquisition

- Environmental Justice
- Utilities and Emergency Services
- Archaeological Resources
- Hydrology and Floodplains
- Water Quality and Stormwater Runoff
- Geology/Soils/Seismic/Topography
- Paleontology
- Hazardous Waste/Materials
- Noise
- Energy
- Plant Species
- Invasive Species

Resources with Potential for Cumulative Impacts

The following resources either have significant impacts identified or are in poor or declining health and are therefore discussed in this cumulative impact analysis:

- Coastal Zone Resources (Coastal Zone riparian non-wetlands)
- Visual/Aesthetics
- Cultural Resources
- Natural Communities (coast live oak woodland)
- Wetlands and Other Waters (riparian non-wetlands, Coastal Zone riparian non-wetlands)
- Special-Status Animal Species (Santa Cruz black salamander, California giant salamander, western pond turtle, Cooper's hawk, white-tailed kite, pallid bat, Townsend's big-eared bat, hoary bat)
- Threatened and Endangered Species (tidewater goby, Central California coast steelhead, foothill yellow-legged frog, California red-legged frog, least Bell's vireo, southwestern willow flycatcher, monarch butterfly)

For those resources that have the potential for a cumulative impact, the sections below describe the Resource Study Areas, current health and historical context, impacts of the project that may contribute to a cumulative impact, and impacts of reasonably foreseeable future projects for each resource analyzed for cumulative impacts. These sections also present the cumulative impacts of each resource.

Environmental Consequences

The information presented in these sections includes the results of Steps 2 through 6 of the cumulative impact analysis. Step 7 of the cumulative impact analysis requires the reporting of the information found in Steps 2 through 6; these sections document those results and satisfy the requirements of Step 7.

Visual/Aesthetics

The visual Resource Study Area encompasses the project limits, including the State Park Drive overcrossing above State Route 1 on the north and the Freedom Boulevard overcrossing above State Route 1 on the south. On the inland side of Route 1, it extends to the first ridgeline above the highway, tapering down to encompass only properties adjacent to the highway south of the southern project terminus. On the seaward side of Route 1, the visual Resource Study Area extends approximately 0.5 miles from Route 1, except in locations where there are visual obstructions due to topography, development, and vegetation. In those locations the visual Resource Study Area extends only to properties adjacent to the highway.

The current health and historical context of visual and aesthetic resources in the Resource Study Area are defined by sweeping changes to the visual environment accompanying the rapid development of the mid-twentieth century, which have left visual resources in poor health. However, the growth management policies instituted more recently, even as development continues, suggest that the trend is for conditions to remain in a stable condition of poor health.

The improvements under the project would have an adverse impact on the visual quality of the corridor, primarily due to the removal of trees and mature vegetation. Temporary impacts during the construction period would result from the use of equipment, stockpiling of soils and materials, and clearing of vegetation. Potential permanent impacts to visual and aesthetic resources from reasonably foreseeable future actions may include the removal of trees, widened freeway cross section, soundwalls, and retaining walls, ranging from low to moderate-high levels of visual quality change.

Although the trend for visual resources is considered to be in a generally stable condition, this resource is in a condition of poor health, and the effects of past, current, and future development, including the proposed project, has the potential to further reduce the visual quality in the Resource Study Area. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting the distribution of visual impacts of the project, including the loss of mature trees along the project corridor, the length of time required for replacement trees to reach maturity, and the inability to fully mitigate the visual impacts of the proposed project. These factors suggest that the incremental contribution of the proposed project to the cumulative visual impact may be considerable.

Wetlands and Other Waters

The Resource Study Area for wetlands and other waters encompasses the areas of freshwater marsh/ riverine habitat in the Coastal Zone within the Biological Study Area, which consists of a linear area within and adjacent to the State Route 1 ROW from State Park Drive to Freedom Boulevard and also encompasses the Santa Cruz Branch Line railroad ROW from State Park Drive to Rio Del Mar Boulevard, and extends beyond the Biological Study Area to include the watersheds of the following resources: Soquel Creek, Nobel Creek, Tannery Gulch, Borregas Creek, Valencia Channel, Aptos Creek, Valencia Creek, Ord Gulch, Pot Belly Creek, Rodeo Creek Gulch, Soquel Lagoon, Valencia Lagoon, and Valencia Channel.

Wetland acreage in the Monterey Bay region has greatly decreased since the 1890s, and wetlands have become more fragmented, due primarily to human impacts, though wetland acreage may have been stable since the late 1970's. Federal, state, and local laws and regulations along with studies done nearby indicate that the health of this resource will remain poor but stable. Current and future restoration activities may eventually lead to a gradual improvement in the health of this resource. Over the past 200 years, other waters in the area have been impacted by land use changes, channel alteration, levee and dam construction, flood control structures, roadway crossings, water diversions, and groundwater depletion. The efforts at multiple levels of government to protect this resource indicate that the current condition of poor health is stabilizing.

Impacts on wetlands from the proposed project include 0.061 acre of permanent impacts and 1.473 acre of temporary impacts. Impacts on other waters include 0.226 acre of temporary impacts and no permanent impacts.

Although the trend for wetlands and other waters is considered to be generally stable, this resource is in a condition of poor health, and the effect of past, current, and future development, including the proposed project, has potential to further degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact was considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.2.2, *Wetlands and Other Waters*, and that the overall scale of wetlands and other waters would not be substantially affected. These factors indicate that the incremental contribution of the Project to the cumulative impact of past, present, and reasonably foreseeable future projects in the vicinity of the Project would not be considerable.

Riparian Forest

The Resource Study Area for riparian non-wetlands (riparian forest) and Coastal Zone riparian non-wetlands encompasses the areas of riparian habitat within the Biological Study Area and extends beyond the Biological

Study Area to include the watersheds of the following resources: Ord Gulch, Borregas Creek, Potbelly Creek, Tannery Gulch, a tributary to Tannery Gulch, and Nobel Creek.

The current health and historical context of riparian non-wetlands (riparian forest) and Coastal Zone riparian non-wetlands include decreases in the extent of riparian habitats within the County of Santa Cruz region over the past 200 years, due to the encroachment of agriculture, domestic animal grazing, urban development, roadway crossings, water diversions and channelization for drainage and flood control. Given the loss of riparian forest that has occurred, this resource appears to be in poor health. Despite the small remaining amount of old-growth forest, the regulatory protections for riparian corridors suggest that conditions are remaining stable, with a potential for improvement.

Impacts on riparian non-wetlands (riparian forest) from the proposed project include 0.081 acre of permanent impacts and 1.471 acre of temporary impacts. Potential impacts to riparian forest from reasonably foreseeable future actions include the permanent and temporary loss of riparian non-wetlands, including land disturbance and tree removal.

Although the trend for riparian forest is considered to be generally stable with a potential for improvement, this resource is in a condition of poor health. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would not introduce new stream crossings in previously undeveloped areas, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of the riparian forest would not be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on riparian forest habitat would not be considerable.

Coast Live Oak Woodland

The Resource Study Area for coast live oak woodland encompasses the riparian forest Resource Study Area (described above), the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the Biological Study Area, and areas of open land immediately surrounding New Brighton State Park and from Freedom Boulevard to San Andreas Road, extending from the Pacific shore to the ridgeline above Route 1.

The current health and historical context of coast live oak woodland include the effects of grazing, wood harvesting, invasive species, land clearing, and urban expansion, which have led to the elimination of extensive areas of coast live oak woodland in the region. Though local laws and regulations may

decrease the future impact of development, the health of this resource is considered poor and may continue to decline given the remaining threat of invasive species.

Impacts on coast live oak woodland resulting from the project would include 1.565 acres of permanent impacts and 1.019 acres of temporary impacts. Potential impacts to coast live oak woodland from reasonably foreseeable future actions may include the permanent and temporary loss of coast live oak woodland, including land disturbance and tree removal within areas of coast live oak woodland habitat.

Coast live oak woodland is considered to be in a condition of poor health, and the trend for this resource may be in decline, although there is a possibility for improvement. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact was considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the coast live oak woodland natural community would not be considerable.

Tidewater Goby

The Resource Study Area for tidewater goby encompasses the entirety of Critical Habitat Unit SC-7 (Aptos Creek) and includes Soquel Creek, Arana Gulch, Rodeo Gulch and their tributaries, as well as a 500-foot buffer around these resources.

This species faces many threats and has seen a reduction in its historic range. Data on population dynamics for this species is limited and short-term variability in local populations is common and natural. Though populations have historically declined and threats from climate change, drought, predation, and habitat loss remain, the population is thought to be relatively stable but is considered to be in poor health.

It is unexpected that tidewater goby would occupy the creeks within the Biological Study Area. However, impacts to tidewater goby habitat could occur in the wetted portion of Aptos Creek downstream of the Biological Study Area from construction activities.

These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Tidewater Goby would not be considerable.

Fill and dewatering during construction activities have the potential to impact the species. Measures are identified in Section 2.3.5, *Threatened and Endangered Species* to avoid and minimize potential impacts.

Central California Coast Steelhead

The Resource Study Area for Central California coast steelhead encompasses the entirety of Hydrologic Sub-areas 330412 (San Lorenzo) and 330413 (Aptos-Soquel). These hydrologic subareas include Soquel Creek and Arana Gulch and their tributaries.

Development and land use changes have caused declines in water and habitat quality which resulted in substantial reductions in population of this distinct population segment. Given historic population declines and loss of habitat, this species is considered to be in poor health. Conservation efforts and restoration activities in the area may stabilize Steelhead populations; however, based on the documentation to date, the trend of decline appears to be continuing.

Potential impacts from reasonably foreseeable projects include disturbance of habitat, runoff to habitat, or changed streamflow.

Project activities could result in temporary and permanent impacts to aquatic and riparian habitats along Aptos and Valencia Creeks, where Steelhead are known to be seasonally present. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions. Activities could also increase the potential for erosion and sediment transport downstream. Water quality degradation resulting from Project activities could potentially impact steelhead habitat. The use of mechanized equipment could also lead to the unintentional release of fuels, lubricants, solvents, or other pollutants into the channel, thus affecting water quality. Removal of the existing bridge support structures located immediately adjacent to Aptos Creek would result in long-term improvements to central California coast steelhead critical habitat. Nevertheless, the Project may affect, and is likely to adversely affect, central California coast steelhead critical habitat due to temporary dewatering. Measures are identified in the Section 2.3.1 to avoid and minimize potential impacts, including improving fish passage at Valencia and Aptos creeks. The arch culvert at Valencia Creek has been identified as a priority fish passage barrier; therefore, the project would construct a temporary fish passage solution to comply with Senate Bill 857. Mitigation is identified in Section 2.3.5, *Threatened and Endangered Species* to address the fish passage barrier. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Central California coast steelhead would not be considerable.

California Giant Salamander and Santa Cruz Black Salamander

The Resource Study Area for these two species is contiguous with that identified for the California red-legged frog, described below.

Historic conversion of habitat to agricultural and urban land uses has caused habitat fragmentation and loss for both species. In addition to habitat disturbance and destruction, disease (pathogenic fungi) and climate change have contributed to a decline in the population of this species. Given the ongoing threats to reproduction and dispersal due to continued urbanization, the species is considered to be in poor health with a declining trend in population.

Grading or other earthwork included in the project could impact Santa Cruz black salamanders and California giant salamanders in the Biological Study Area, where Caltrans proposes shoulder improvements for the project, particularly in uplands next to streams along State Route 1. Individuals could, therefore, be subjected to injury or mortality as a result of ground-disturbing activities. The potential need to capture and relocate Santa Cruz black salamanders or California giant salamanders could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even worker foot-traffic. Potential impacts from reasonably foreseeable future projects to Santa Cruz black salamanders and California giant salamanders also include the disturbance of habitat.

Santa Cruz black salamanders and California giant salamanders are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the proposed project's contribution to this cumulative impact were considered, noting that the proposed project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Santa Cruz black salamanders and California giant salamanders would not be considerable.

Santa Cruz Long-Toed Salamander

The Resource Study Area for Santa Cruz long-toed salamander encompasses the water bodies identified in the mapping of Santa Cruz long-toed salamander habitat and a 1.3-mile radius of these water bodies.

As a result of urbanization and cultivation that have occurred since the mid-19th Century, areas of upland and aquatic habitats suitable for Santa Cruz long-toed salamanders have been removed and altered, and barriers to dispersal have been created, resulting in subpopulations which are isolated

from each other. Given the endangered status of this species, it is considered to be in poor health. The threats of habitat fragmentation, drought, and pollution are likely to continue, therefore this species' population is likely to trend downwards. This species is documented at the Valencia Lagoon. No project-related construction activities will occur within Valencia Lagoon or within upland habitat areas. The repairs to the fence separating the Valencia Ecological Preserve from the State Route 1 right-of-way are anticipated to prevent individual Santa Cruz long-toed salamander from entering the area of construction. Measures are identified in Section 2.3.4, Animal Species to avoid and minimize potential impacts. Because of the fully protected status of the Santa Cruz long-toed salamander, all impacts will be avoided.

California Red-Legged Frog

The Resource Study Area for California red-legged frog encompasses the areas of freshwater marsh and riparian forest habitat mapped within the Biological Study Area, and extends beyond these areas to include the entirety of Valencia Lagoon, Valencia Channel, and Soquel Lagoon, as well as the length of the streams the project corridor crosses (and upstream to the ridgeline above Route 1, and downstream to the Pacific coast), encompassing a 3-mile buffer.

Once widespread in California, the California red-legged frog has been extirpated from 70 percent of its former range and faces continued threats in the form of habitat loss, predation, and competition. While a recovery plan has been developed and initiated for this threatened species, California red-legged frog is considered to be in poor health with a declining population trend.

The health and historical context of the California red-legged frog is that, although once widespread in California, it has been weeded out from 70 percent of its former range and faces continued threats in the form of habitat loss, predation, and competition. While a recovery plan has been developed and initiated for this threatened species, it is considered to be in poor health with a declining population trend.

Construction within the Biological Study Area could result in direct impacts on California red-legged frogs, which could result in injury or death to individual California red-legged frogs if they are found to be breeding in riparian areas or estivating in nearby uplands. Grading or another earthwork could impact California red-legged frogs where Caltrans proposes shoulder improvements for the project, particularly in uplands next to streams along State Route 1. Individuals could, therefore, be subjected to injury or mortality as a result of ground-disturbing activities. Potential impacts from reasonably foreseeable future projects to California red-legged frogs include the disturbance of habitat.

California red-legged frogs are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this species' condition further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment, and the overall scale of riparian forest habitat would not be substantially affected. These factors indicate that the incremental contribution of the project to the cumulative impact on California red-legged frogs would not be considerable.

Western Pond Turtle

The Resource Study Area for western pond turtle encompasses riparian forest habitat mapped within the Biological Study Area, and extends beyond these areas to include the entirety of Valencia Lagoon, Valencia Channel, and Soquel Lagoon, as well as the length of streams (extending upstream to the first ridgeline and downstream to the Pacific coast), encompassing a 1,400-foot buffer. The health and historical context for the western pond turtle includes adverse conditions that affect several coastal drainages between the San Francisco Bay and the Santa Clara River. Most of the San Joaquin Valley and the Salinas and Pajaro drainages include the effects of drought, habitat alteration, changes in land and water use, and abusive grazing practices. Given the historical and recent population declines, existing threats, and age trends, the health of this resource is considered to be poor and likely to continue to decline.

The Biological Study Area is within the known range of western pond turtle and suitable habitat is present. Construction activities involving in-water work and dewatering could result in direct injury or mortality, if western pond turtles are inhabiting aquatic or upland areas within the Biological Study Area. Construction activities including the excavation and installation of fill for bridges or other structures would result in the permanent loss of aquatic habitat and degradation. Dewatering could result in a temporary reduction in the quantity of available aquatic habitat. Areas with the greatest potential for impacts to western pond turtle would be along Aptos Creek. Measures are identified in Section 2.3.4, Animal Species to avoid and minimize potential impacts.

Western pond turtles are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade these species' condition further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and

compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of riparian forest habitat would not be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the western pond turtle would not be considerable.

Cooper's Hawk

The Resource Study Area for Cooper's hawk includes the oak woodland and riparian forest habitat mapped within the Biological Study Area and extends along each stream crossed by the proposed project, downstream to the Pacific Coast, and upstream to ridgelines above the urbanized areas (thereby encompassing foothill areas). A 3-mile buffer is included along each stream. The Resource Study Area also includes New Brighton State Park and areas of open land between the western and eastern portions of New Brighton State Park; aerial imagery was used to identify areas of open land.

The health and historical context of Cooper's hawk includes the gradual loss of habitat (logging in forested areas as well as development), which has been identified as a current threat for Cooper's hawk population in California. The current population is considered to be at or near carrying capacity in available nesting territories. In recent years, Cooper's hawk populations have increased, and range expansions have been seen, especially the colonizing of urban and suburban areas by breeding pairs. Given recent increases in population and range expansions, the health of this resource is considered to be good and is expected to be either stable or improving.

The removal of vegetation and/or nests as a result of the proposed project could directly impact bird nests and any eggs or young living in nests. Because birds can be sensitive to noise disturbances, temporary indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. No evidence of nests were seen on the Capitola Avenue overcrossing (which would be replaced during construction), but future nesting attempts under the bridge could occur and could be impacted if present during construction. Potential impacts from reasonably foreseeable future projects to Cooper's hawks include the permanent and temporary loss of nesting habitat through tree removal or nest disturbance.

Cooper's hawk is considered to be in a condition of good health, with a trend that is stable or improving. However, the effects of past, current, and future development, including the proposed project, could potentially degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of riparian forest and potential nesting habitat would not

be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Cooper's hawk would not be considerable.

White-Tailed Kite

The Resource Study Area for the white-tailed kite encompasses the areas of riparian forest habitat mapped within the Biological Study Area and extends beyond these areas to include the length of the streams the project corridor crosses (and upstream to the ridgeline above State Route 1, and downstream to the Pacific Coast), encompassing a 3-mile buffer.

The health and historical context of white-tailed kites include a severe decline in population in the early 1900s, followed by an increase in population and distribution from the 1940s to 1970s. This species is considered to be in fair health and have a stable or increasing population trend.

The removal of vegetation and/or nests resulting from the proposed project could directly impact bird nests and any eggs or young living in nests. Because birds can be sensitive to noise disturbances, temporary indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. No evidence of nests were seen on the Capitola Avenue overcrossing (which would be replaced during construction), but future nesting attempts under the bridge could occur and could be impacted if present during construction. Potential impacts from reasonably foreseeable future projects to white-tailed kites also include the permanent and temporary loss of nesting habitat through tree removal or nest disturbance.

The white-tailed kite is considered to be in a condition of fair health, with a stable or improving trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this species' condition further. Avoidance and minimization measures would avoid all take of white-tailed kites; however, as described in Section 2.3, Biological Environment, birds can be sensitive to noise disturbances, and temporary indirect impacts may result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on white-tailed kites would not be considerable.

Least Bell's Vireo and Southern Willow Flycatcher

The Resource Study Area for these species encompasses the same Resource Study Area for riparian corridors and riparian forest habitat, plus a 200-foot buffer around those areas.

Once widespread and abundant, least bell's vireo populations declined in the post-World War II era due to habitat loss and the expansion of the brown-headed cowbird. The current health of this species is considered poor due to its listing as an endangered species, however the population has been increasing and that is expected to continue. The current health of the southern willow flycatcher species is considered poor due to its listing as an endangered species, though the population trend may be stable. Potential impacts from reasonably foreseeable projects include disturbance of brush or trees which may affect habitat.

Direct impacts to active bird nests and any young or eggs residing in nests could occur during the removal of trees and vegetation and/or the removal of nests. Temporary indirect impacts to birds could result from disturbance and noise associated with construction activities, which could alter nesting and/or foraging behaviors.

Marginal suitable foraging and breeding habitat for these species is present within the Biological Study Area. Due to the distance from known occurrences of these species, there is a low potential for forage and nest within the riparian habitat. As proposed, the Project would permanently impact 0.081 acre of riparian habitat and temporarily impact 1.471 acre of riparian habitat, which could be utilized by LBV and SWWF for nesting or foraging purposes. Impacts to active nests belonging to Southwestern willow flycatcher and least Bell's vireo could occur within riparian habitat in the Biological Study Area from construction activities. Indirect effects including project-related noise and vibration generated from nearby construction activities may disrupt nesting or foraging activity. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Least Bell's Vireo and Southern Willow Flycatchers would not be considerable (revised in final environmental document to clarify conclusion).

Monarch Butterfly

The Resource Study Area for the monarch butterfly encompasses the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the Biological Study Area, New Brighton State Park, and areas of open land between the western and eastern portions of New Brighton State Park, extending to the Pacific shore.

Monarch butterfly counts conducted in the winters of 2018-2020 suggest continued and dramatic declines in monarch populations in California. In

In addition to habitat loss and land use practices, the widespread contamination of milkweed with pesticides is thought to play a major role in the declining population. Given historic habitat loss and recent population declines, the current health of this resource is poor. Monarch populations are impacted by habitat loss and land use practices in the Resource Study Area and elsewhere (including other states and countries) due to their migration patterns. Efforts to monitor, protect and improve habitat for this species are underway though threats remain, therefore the health of this resource is expected to remain poor but stabilize. Impacts of reasonably foreseeable projects include permanent and temporary loss of overwintering habitat.

Marginally suitable overwintering habitat is present within the eucalyptus woodland where the Santa Cruz Branch Rail Line crosses State Route 1. While not currently known to be occupied as an overwintering site, it could be in the future. Indirect impacts to monarch butterflies could result in reduction of potential overwintering habitat, which would require monarch butterflies to find alternative overwintering habitat. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts.

Although the trend for the monarch butterfly is considered to be generally stable, monarch butterfly habitat is in a condition of poor health, and the effects of past, current, and future development, including the proposed project, has the potential to degrade monarch butterfly habitat further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on monarch butterflies would not be considerable.

Pallid Bat, Townsend's Big-Eared Bat, and Hoary Bat

There is one Resource Study Area for the pallid bat, Townsend's big-eared bat, and hoary bat. This Resource Study Area encompasses the areas of grassland, riparian forest, and oak woodland habitat mapped within the Biological Study Area and extends downstream to the Pacific Coast and upstream to ridgelines above the urbanized areas encompassing a 3-mile buffer of the streams that the project crosses. The Resource Study Area also includes New Brighton State Park and areas of open land between the western and eastern portions of New Brighton State Park.

The health and historical context of these bat species varies. The pallid bat is believed to be intolerant of urban development, and populations are thought to have declined in recent decades. While populations are stable nationally, the health of this species is likely declining in coastal areas of California.

Townsend's big-eared bat's perceived susceptibility to human disturbance at roost sites is usually cited as a key behavioral characteristic, putting the species at conservation risk. Based on the limited available information about this species, it appears to be in a condition of poor health, and there is potential that the condition of Townsend's big-eared bat in California is declining. While the urbanization of the Resource Study Area may have been a factor in the lack of recorded occurrences of the hoary bat since 1940, statewide and nationwide, the hoary bat is thought to be in relatively good health and be in stable condition.

Direct impacts to bat species that utilize existing trees or structures, including the Santa Cruz Branch Rail Line overcrossings, as roosting habitat could occur during the removal of trees and/or structures within the Biological Study Area. Temporary indirect impacts to roosting bats could result from disturbance and noise associated with construction activities, which could alter roosting behavior. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts.

These species are in varied health, as described above. The effects of past, current, and future development, including the proposed project, could potentially degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the pallid bat, Townsend's big-eared bat, and the hoary bat would not be considerable.

Historic Resources

There is one Resource Study Area for the Southern Pacific Railroad (Santa Cruz Branch Line). This historic resource runs along Segment 12 of the Coastal Rail Trail in the project area, and other segments of the 50-mile Monterey Bay Sanctuary Scenic Trail network. Potential impacts include temporary and permanent removal of rail in Segment 12 of the Coastal Rail Trail. The optional first phase would entail approximately 1.25 miles of temporary rail removal representing 6.2% of the 20.2 miles of the Santa Cruz Branch Railroad. Rail removal would be necessary due to the possibility that all or a portion of the railroad would be railbanked to preserve the corridor for future freight re-activation. Also, the replacement of the railroad bridges over State Route 1 would require rail replacement. The ultimate configuration would replace the rail on the two new railroad bridges over State Route 1.

The railroad was closed to passenger service in 1959 which was subsequently purchased by Santa Cruz County Regional Transportation Commission in 2012 and is currently not in use. The alignment is the primary contributing feature. Railroad materials such as ballast, steel rails, earthen

embankments, and wood railroad ties are secondary contributing features as they are typical railroad features and are not original historic fabric (i.e., they've been replaced over time with newer materials). The railroad alignment which gives this resource its general sense of feeling and association as a historic railroad would not change because of the project. Therefore, there would be limited removal only where required, thereby minimizing potential impacts.

Impacts from reasonably foreseeable projects include permanent removal of historic rail.

The railroad and its associated features are generally in fair condition. The Santa Cruz Branch Line has been evaluated and recommended as eligible to the California Register of Historical Resources and the National Register of Historic Places under Criterion A/1 within the theme of railroad development and transportation. Despite 6.2% rail removal in this section under the optional first phase, Santa Cruz County Regional Transportation Commission is committed to preserving as much of the character-defining features (including rail) of the overall alignment as is possible. Rail is already being preserved within other sections of the Coastal Rail Trail. Segments 5 through 9 and the Ultimate Trail configuration of segments 10 and 11 are leaving tracks in place over the majority of the line and replacing in kind for short stretches where they need to be realigned. For these reasons, the Santa Cruz Railroad retains sufficient integrity to convey its historical significance.

Cumulative impacts will be readdressed in any future projects that propose any amount of rail removal and avoidance, minimization, and /or mitigation measures would be implemented as needed. Because contributing features would not change as a result of the project, the project's contribution to significant cumulative impacts on cultural/historic resources would be less than cumulatively considerable.

Avoidance, Minimization and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures from Sections 2.1.8, Visual/Aesthetics, 2.3.1, Natural Communities, 2.3.2, Wetlands and Other Waters, 2.3.4, Animal Species, and 2.3.5, Threatened and Endangered Species, would be implemented to avoid, minimize, and/or mitigate cumulative impacts:

- Visual Resources: AMM-VA-1 through AMM-VA-18
- Wetlands and Other Waters: AMM-BIO-1 through BIO-16, Mitigation Measures BIO-17
- Riparian forest: AMM-BIO-1 through BIO-16, Mitigation Measure BIO-17
- Coast live oak woodlands: AMM BIO-18 through BIO-21, Mitigation Measure BIO-22

- Central California Coast Steelhead: AMM BIO-23, Mitigation Measure BIO-24
- California Giant Salamander: AMM BIO-25, Mitigation Measure BIO-17
- Santa Cruz Black Salamander: AMM BIO-26, Mitigation Measure BIO-17
- Western Pond Turtle: AMM BIO-27, Mitigation Measure BIO-17
- Cooper's Hawk and White-Tailed Kite: Standard Measure BIO-1, AMM BIO-28 through BIO-32, Mitigation Measure BIO-17
- Hoary Bat, Pallid Bat, Townsend's Big-Eared Bat: AMM BIO-33 through 37, Mitigation Measure BIO-17
- Monarch butterfly: AMM BIO-43 and AMM BIO-44
- California red-legged frog: AMM BIO-45 through BIO-62, Mitigation Measure BIO-17
- Cultural/Historic Resources: No mitigation required

In addition to the avoidance and minimization measures and mitigation measures listed above, the following agency recommendations are provided for future projects within the Resource Study Areas to consider:

Visual/Aesthetics

The County of Santa Cruz and the City of Capitola have regulatory authority over visual resources associated with the project. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing tree preservation and planting and encouraging or requiring screening plantings.

Wetlands and Other Waters

Agencies with regulatory authority over wetlands and other waters include the Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and the County of Santa Cruz. Within the Coastal Zone, the California Coastal Commission also has regulatory authority over this resource. Recommendations for agencies to mitigate overall cumulative impacts include supporting local efforts to restore these resources. As an example, the U.S. Fish and Wildlife Service is undertaking efforts at the Ellicott Slough National Wildlife Refuge to remove non-native invasive plant species such as eucalyptus species and pampas grass, and to revegetate with native plant species. Efforts to restore wetland and other waters would benefit species that utilize these habitats, including white-tailed kite.

Riparian Forest

Recommendations for agencies to mitigate overall cumulative impacts for resources within this habitat include supporting local efforts to restore these resources, and identifying opportunities for habitat enhancement.

Coast Live Oak Woodland

The California Department of Fish and Wildlife, County of Santa Cruz, and the City of Capitola have regulatory authority over coast live oak woodland. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing preservation and planting of coast live oaks via building permits, development approvals, and project permitting. Additionally, recommendations would also include encouraging sustainable and larger ecosystem mitigation efforts rather than smaller, piecemeal mitigation efforts by looking at advanced mitigation and establishing mitigation banking opportunities.

Tidewater Goby

Agencies with regulatory authority over this resource are the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. Recommendations for agencies to mitigate overall cumulative impacts include supporting local efforts to restore habitats for tidewater goby. As a specific example, in 2016, the Friends of Santa Cruz State Parks, California State Parks and the Watershed Stewards Program hosted a volunteer-driven restoration effort to remove invasive species along Moore Creek, which supports tidewater goby (Caltrans 2018).

Central California Coast Steelhead

The National Marine Fisheries Service of the National Oceanic and Atmospheric Administration and the California Department of Fish and Wildlife have regulatory authority over Central California coast steelhead. Recommendations for agencies to mitigate overall cumulative impacts include the support and funding of fish passage projects, and identifying opportunities for habitat enhancement, such as enlarging bridges and culverts to better facilitate the passage of woody debris in creeks that support Central California coast steelhead. The enlargement of bridges and culverts can support the movement of woody debris within creeks, which is important for salmonid habitat, and may also result in long-term lower annual maintenance costs (Caltrans 2018). The arch culvert at Valencia Creek has been identified as a priority fish passage barrier; therefore, the project would construct a temporary fish passage solution to comply with Senate Bill 857. Mitigation is identified in the Natural Environment Study to address the fish passage barrier.

California Giant Salamander and Santa Cruz Black Salamander

As described in Section 2.3.5, the project will implement avoidance and minimization measures specific to the California Giant Salamander and Santa Cruz black salamander including preconstruction surveys and potential relocation to suitable habitat outside of the area of impact. Compensatory mitigation proposed for impacts to aquatic habitats would also compensate for potential impacts to Santa Cruz black salamander habitat.

Santa Cruz Long-toed Salamander

The California Department of Fish and Wildlife and U.S. Fish and Wildlife Service have regulatory authority over Santa Cruz long-toed salamander. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing the preservation of areas of undeveloped land that would benefit this resource, and support connectivity and genetic exchange between subpopulations of the species. An example of taking measures to preserve these undeveloped areas is the efforts of the Land Trust of Santa Cruz County to identify important areas for multiple benefit conservation in its Conservation Blueprint (Caltrans 2018).

California Red-Legged Frog and Western Pond Turtle

The U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife have regulatory authority over California red-legged frog. California Department of Fish and Wildlife has regulatory authority over western pond turtle. Due to the similarities in habitat requirements for these species, recommendations for agencies to mitigate overall cumulative impacts to these species include supporting local efforts to protect California red-legged frog habitat, including habitat restoration and enhancement. An example of local efforts to protect California red-legged frog habitat is the partnership between the non-profit organization Save The Frogs! and the Land Trust of Santa Cruz County to restore habitat for California red-legged frog at Antonelli Pond in the City of Santa Cruz (Caltrans 2018). These organizations are involving the community in efforts to plant native vegetation, and to eradicate invasive weeds, predatory fish and bullfrogs in order to protect habitat for California red-legged frog and provide environmental education to the public.

Cooper's hawk, White-tailed Kite, Least Bell's Vireo, and Southwestern Willow Flycatcher

The project will implement avoidance and minimization measures for the bird species identified above, which apply to all other birds protected by the Migratory Bird Treaty Act and California Fish and Game Code as described in Sections 2.3.4 and 2.3.5. , These measures will include pre-construction surveys, if any construction activities are proposed to occur during the typical nesting season, and the establishment of environmentally-sensitive areas around active nests to be avoided by the contractor. Due to the fully protected status of white-tailed kite, impact to this species will be avoided.

Monarch Butterfly

The California Department of Fish and Wildlife has regulatory authority over monarch butterflies. Recommendations for agencies to mitigate overall cumulative impacts include supporting efforts to restore habitat restoration for monarch butterflies. For example, the Environmental Defense Fund is partnering with the Monarch Joint Venture and the Iowa Monarch Conservation Consortium to develop a Monarch Butterfly Habitat Exchange,

which would incentivize farmers and ranchers to maintain and increase the availability of milkweed, which is vital to the monarch butterfly life cycle. (Environmental Defense Fund 2019)

Pallid Bat, Townsend’s Big-Eared Bat, and Hoary Bat

The California Department of Fish and Wildlife has regulatory authority over pallid bat, hoary bat, and Townsend’s big-eared bat. Recommendations for agencies to mitigate overall cumulative impacts include supporting efforts to monitor bats in the Central Coast. For example, the Central Coast Bat Survey, the primary research project of the Pacific Coast Conservation Alliance, is seeking to investigate the relationship between Central Coast bats and viticulture and the effects of habitat enhancements on bat populations. The Central Coast Bat Survey is intended to address concerns regarding the economic impact that declines in bat populations could have on agricultural productivity, and the effectiveness of measures to improve bat survivorship, such as the installation of bat boxes, reduction of pesticide application, and creation of bat-friendly habitats (Caltrans 2018).

Cultural/Historic Resources

This resource is pending State Historic Preservation Officer concurrence. As stated above, the proposed project would not contribute to an adverse cumulative impact. No mitigation is required.

Further, SCCRTC is committed to preserving character-defining features and retaining as much rail as possible. The long-term goal is to reestablish a rail line along this corridor

References

California Department of Transportation. 2022. Cumulative Impact Analysis. State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project. Santa Cruz County, California. November.

Chapter 3

California Environmental Quality Act Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both NEPA and CEQA. The Federal Highway Administration's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated May 27, 2022, and executed by the Federal Highway Administration and Caltrans. Caltrans is the lead agency under NEPA and CEQA.

One of the main differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental document.

CEQA, on the other hand, does require that Caltrans identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the State CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. Potential impact determinations include Significant and Unavoidable Impact, Less Than Significant With Mitigation Incorporated, Less Than Significant Impact, and No Impact. In many cases, background studies performed in connection with a project will indicate that there are no impacts to a particular resource. A No Impact answer reflects this determination. The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 to provide you with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

Significant and Unavoidable Impact— Within the project vicinity, scenic vistas are available where the roadway viewing position allows visual access to the hillsides and ridgelines. Roadway widening would have a moderate impact on the scenic quality of the project location. The vegetation and tree removal required to facilitate the widening would be kept to the minimum required but would still result in impacts as described in Section 2.1.8. Therefore, the changes from construction and operation could result in an effect on a scenic vista. Implementation of Avoidance, Minimization, and Mitigation Measures VA-1 through VA-18 would reduce this impact, but not to a less than significant level.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Significant and Unavoidable Impact— State Route 1 is an eligible state scenic highway, meaning it is eligible for future listing on the State Scenic Highways system but has not been officially designated (Caltrans 2017). Within the County of Santa Cruz, State Route 1 is designated as a scenic road, valued for its vistas (County of Santa Cruz 1994: 5-34). The County of Santa Cruz also has a tree removal policy, restricting the removal of healthy trees unless they pose a traffic hazard or for road widening, and the replacement of trees nearby is required. These designations and policies suggest high local aesthetic values. The proposed project would require vegetation removal for the widening and construction of soundwalls and retaining walls, which would result in impacts as described in Section 2.1.8, Visual/Aesthetics. Implementation of Avoidance, Minimization, and Mitigation Measures VA-1 through VA-18 would reduce impacts on scenic resources, but significant impacts would remain.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact—As shown in Section 2.1.1, the project would be consistent with aesthetic and coastal resource protection goals for the State Route 1 corridor. The project would not significantly impact the visual environment with the incorporation of avoidance, minimization, and mitigation measures described in Section 2.1.8, Visual/Aesthetics. This impact would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact—No new sources of light or glare are expected as part of the highway and Bus-on-Shoulder component. However, nighttime construction would likely occur, and some nighttime lighting at the construction site would be required and could result in light nuisance if not properly designed. The project would result in a nominal increase in daytime glare by increasing the paved area and by removing some of the roadside vegetation that provides shade. However, roadside vegetation would still be present along the right-of-way to provide some shade. Lighting could be installed in portions of the trail corridor for safety. They would likely be similar to lights on other segments on the trail. Light and glare effects would be potentially significant; however, implementation of avoidance and minimization measures would reduce the effects of nighttime construction and light and glare impacts from lighted intersections and any new lighting types for the trail. Therefore, the changes would not result in a new source of substantial light or glare that would significantly impact daytime or nighttime views in the area. This impact would be less than significant.

3.2.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact— There is no farmland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact— There are no lands designated for agricultural use or lands enrolled in a Williamson Act contract in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact— There are no lands zoned for forest land or timberland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact— There are no lands zoned for forest land or timberland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact— No farmland or forest land would be converted; therefore, there would be no impacts.

3.2.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact—This project would result in shifts from auto to transit modes, improve freeway level of service and average speed, improve freeway operation conditions in the southbound PM peak direction, and improve pedestrian and bicycle connectivity with the two new trail crossings. The project would generate a less than significant amount of pollutants during construction and would result in emission reductions under long-term operation. The project is included in the Santa Cruz County Regional Transportation Commission's Regional Transportation Plan and Regional Transportation Improvement Program, both of which were found to be conforming (see Section 2.2.6, Air Quality). Therefore, the project would not conflict with the Air Quality Management Plan. Impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact— The project would not increase capacity and would result in slight reductions in criteria pollutant emissions, relative to existing conditions (see Section 2.2.6, Air Quality). The project would result in shifts from auto to transit modes, improve freeway Level of Service and average speed, and improve freeway operation conditions. The project would also enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail. Additional analysis shows that construction period emissions would likewise be minimal, resulting in a maximum of 51 pounds per day of NO_x during the grading/excavation phase (see Section 2.2.6, Air Quality) which would not result in long-term health effects on sensitive receptors. Therefore, impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact— Although there are several sensitive receptors within 500 feet of the project site, exposure to construction period emissions would be short term and reduced with implementation of Caltrans Standard Specifications. The project is not in an area known to contain NOA. Adherence to applicable the Monterey Bay Air Resources District rules and Caltrans' Standard Specifications would ensure that asbestos-containing materials during demolition activities would be disposed of appropriately and safely, if found. Soils would also be tested at the start of ground disturbance for the presence of hazardous materials such as lead. If lead is present, the project would be required to develop a lead compliance plan to minimize exposure per the Monterey Bay Air Resources District rules and regulations. Refer to Section 2.2.5, *Hazardous Waste/Materials*, for more information on the handling and disposal of these materials.

As stated in Section 2.1.7, the project would not increase vehicle miles traveled. Rather, the Build Alternative would reduce vehicle delay, increase average speed, and improve level of service, thereby reducing operational mobile source air toxic emissions associated with vehicle idling. As discussed in Section 2.2.6, Air Quality, the Bus-on-Shoulder component of the Build Alternative would move buses slightly closer to freeway-adjacent land uses. However, Santa Cruz Metro is continuously upgrading its transit fleet to include new hybrid buses and zero-emission electric buses. California Air resources Board has also set a deadline of 2040 for all transit operators to transition to zero-emission electric fleets. Lastly, the project includes construction of Segment 12 of the Coastal Rail Trail, which would increase connectivity and safety for bicyclists and pedestrians, and increases use of alternative transportation modes. Therefore, impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact— Temporary odors may be noticeable during construction if the Build Alternative is selected. However, the project would comply with construction standards adopted by the Monterey Bay Air Resources District as well as Caltrans' standard procedures for minimizing air pollutants during construction. The project would not increase long-term odors that are not already present in the project area. Impacts would be less than significant.

3.2.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special

status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—As stated in Section 2.3.5, Threatened and Endangered Species, there are seven special-status species with potential to occur in the Biological Study Area: California red-legged frog, Santa Cruz long-toed salamander, southwestern willow flycatcher, least Bell's vireo, Central California coast steelhead distinct population segment, and tidewater goby. None of these seven species were observed in the Biological Study Area during the survey effort, but they have potential to occur in or near the Biological Study Area.

The Biological Study Area contains marginally suitable aquatic and upland habitat for California red-legged frog; however, no California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area.

Occupied habitat is present at the Valencia Lagoon adjacent to the Biological Study Area for Santa Cruz long-toed salamander but is absent from the Biological Study Area. The fence between the Biological Study Area and Valencia Lagoon will be repaired prior to project commencement, so it is not anticipated that this species would occur in the Biological Study Area. Thirteen California Natural Diversity Database records are known from within two miles of the Biological Study Area.

Suitable riparian habitat is present for the southwestern willow flycatcher, but the Biological Study Area lacks the density required for this species; however, no California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area. Least Bell's vireo is not known to occur in the Biological Study Area and suitable nesting habitat is absent from the Biological Study Area. No California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area.

Central California coast steelhead distinct population segment are known to be seasonally present in Aptos and Valencia Creeks. The Biological Study Area is located within designated critical habitat for the Central California coast distinct population segment steelhead. One California Natural Diversity Database occurrence record is known from within two miles of the Biological Study Area; however, the California Natural Diversity Database record occurrence was recorded in 1985.

Suitable breeding habitat is absent from the Biological Study Area for tidewater goby but suitable aquatic habitat is present just downstream of the Biological Study Area. One California Natural Diversity Database record occurrence documented in 2014 is located in Aptos Creek within the Biological Study Area.

Avoidance, minimization, and/or mitigation measures described in Section 2.3.5, Threatened and Endangered Species, would be implemented to reduce potential impacts on these species. Additionally, the project would qualify for coverage under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program, 8-8-10-F-58 (U.S. Fish and Wildlife Service 2011), which provides approved avoidance and minimization, and/or mitigation measures for California red-legged frogs.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—Natural community/habitat types present within the Biological Study Area include riverine (stream and ditch), riparian woodland, mixed coast live oak woodland, eucalyptus woodland, mixed coniferous woodland, mixed woodland, developed/landscaped areas, annual grassland, and ruderal/disturbed vegetation. As discussed in Section 2.3.1, Natural Communities, 1.53 acres of riparian woodland habitat occur in the Biological Study Area. About 0.081 acre of riparian woodland habitat would be permanently removed, and 1.471 acres would be temporarily disturbed to build the project. Implementation of Best Management Practices, as well as the implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and AMM-BIO-18 through AMM-BIO-21, and Mitigation Measures BIO-17, BIO-22, and BIO-24, would ensure this impact would be less than significant.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant With Mitigation Incorporated— No jurisdictional wetlands of the U.S. were delineated within the BSA. However, as discussed in Section 2.3.2, Wetlands and Other Waters, the project would result in 0 acre of permanent impacts and about 0.226 acre of temporary impacts on waters of the U.S.; 0.061 acre of permanent impacts and 1.473 acres of temporary impacts on waters of the State (characterized as riparian non-wetlands), and 0.061 acre of permanent impacts and 0.697 acre of temporary impacts on Coastal Zone riparian non-wetlands.

Based on the scope of project impacts on jurisdictional waters and implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and Mitigation Measure BIO-17, identified in Section 2.3.1, Natural Communities, and implementation of Best Management Practices, the project would not substantially alter the function or value of wetlands or other waters within the Biological Study Area. The impact would be less than significant with mitigation.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant With Mitigation Incorporated — As discussed in Section 2.3.1, Natural Communities, within the Biological Study Area, Aptos Creek and tributaries are considered to be Critical Habitat for Central California coast steelhead within the critical habitat unit Aptos-Soquel Hydrologic Sub-area 330413 (70 FR 37160). Project activities could result in temporary and/or permanent impacts to aquatic and riparian habitats along Aptos and Valencia Creeks. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions within Aptos and Valencia Creeks and adjacent channel banks. Project activities could disturb channel bank and bed material and increase the potential for erosion and sediment transport downstream.

Such effects would be avoided and minimized through the implementation of avoidance and minimization measures and Best Management Practices that are incorporated as part of the project; and, no effects to steelhead critical habitat are anticipated. However, due to potential dewatering, which could result in a short-term impact to benthic macro invertebrates, which could lead to a temporal loss of habitat, the project may affect, and is likely to adversely affect, Central California coast steelhead critical habitat. Implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-23 and Mitigation Measures BIO-17, BIO-22, and BIO-24 identified in Section 2.3.1, Natural Communities, and implementation of Best Management Practices, the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites within the Biological Study Area. The impact would be less than significant with mitigation (revised in the final environmental document to clarify effect finding).

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant With Mitigation Incorporated—The County of Santa Cruz has a Riparian Corridor and Wetlands Protection Ordinance that aims to minimize and eliminate any development activities in the riparian corridor. The project would be potentially inconsistent with this ordinance. Potentially jurisdictional U.S. Army Corps of Engineers waters of the U.S. (other waters), Regional Water Quality Control Board waters of the State (streambed and riparian non-wetlands), California Department of Fish and Wildlife streams and riparian areas, and Coastal Zone/California Coastal Commission streams and riparian non-wetlands were identified within the project corridor, associated with creeks or drainages. The project has the potential to result in temporary and permanent impacts on riparian and wetland resources and be inconsistent with buffers established by this ordinance. Implementation of

avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and Mitigation Measure BIO-17, identified in Section 2.3.1, Natural Communities, and implementation of Best Management Practices, would reduce this impact to less-than-significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact— The County of Santa Cruz has no adopted conservation plan. Therefore, the project would not conflict with a conservation plan, and no impact would occur.

3.2.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less Than Significant— The Bay View Hotel at 8041 Soquel Drive, is listed on the National Register of Historic Places at the local level of significance under Criterion A and Criterion C. Project activities would not affect the Bay View Hotel. A segment of the Southern Pacific Railroad has been recommended as eligible to the National Register of Historic Places and is considered a historical resource for the purposes of CEQA.

The project would affect the Southern Pacific Railroad (Santa Cruz Branch Line) in different ways depending on the phase of project construction. For the Ultimate Trail Configuration, the project would not diminish the integrity of the resource and would not destroy primary character-defining features of the property.

The Optional First Phase would entail removal of approximately 1.25 miles of steel rail, representing 6.2% of the 20.2 miles of the Santa Cruz Branch Railroad. The rails are not original historic fabric, and while they contribute to the feeling and association of the line as a railway and have been determined to be a contributing feature of the overall historic property, they are not individually eligible elements and have been determined to be less significant than other character-defining features such as the original alignment, bridges, and buildings. Railroad materials such as ballast, steel rails, earthen embankments, and wood railroad ties are secondary contributing features as they are typical railroad features and are not original historic fabric (i.e., they've been replaced over time with newer materials). The railroad alignment which gives this resource its general sense of feeling and association as a historic railroad would not change as a result of the project.

Therefore, while the optional first phase would have an impact on the historic property, (i.e., removal of 6.2% of overall rail line), that impact is less than the removal or alteration of other more significant character-defining features such as the railroad alignment which is the most important contributing element. As a result, this impact would be less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant With Mitigation Incorporated—Three archaeological resources have been identified in the Area of Potential Effects. As discussed in Section 2.1.9, *Cultural Resources*, test excavations were conducted for all three archaeological resources. As a result of testing, CA-SCR-353/H was determined not eligible for listing on the National Register of Historic Places or California Register of Historical Resources (Caltrans 2010). The portions of CA-SCR-2/H and CA-SCR-222/H within the Area of Potential Effects were recommended to be not eligible for listing on the National Register of Historic Places or California Register of Historical Resources. However, the entirety of both sites have not been tested. Therefore, both CA-SCR-2/H and CA-SCR-222/H are considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project. Disturbance of the untested portions of these resources (i.e., outside the Area of Potential Effects), could cause significant impacts on significant archaeological resources.

It is possible that previously unknown archaeological resources could be uncovered during ground-disturbing construction activities. This impact is considered potentially significant.

With implementation of the measures below, the potential impacts on known and previously unknown archaeological resources would be reduced to a less-than-significant level. This impact would be less than significant.

Implementation of avoidance and minimization measures AMM-CUL-1, AMM-CUL-2, AMM-CUL-3, and AMM CUL-4 identified in Section 2.1.9, *Cultural Resources*, would reduce the potential for significant impacts on known and previously unknown archaeological resources to less-than-significant.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact— There is always the potential for discovering human remains during excavation and other ground-disturbing activities. If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the county coroner should be contacted. If the coroner thinks the remains are Native American, the coroner would notify the Native American Heritage

Commission, who, per Public Resources Code Section 5097.98, would then notify the Most Likely Descendant. At this time, the person who discovered the remains would contact the Caltrans District 5 Office of Cultural Resources so that they may work with the Most Likely Descendant on the respectful treatment and disposition of the remains. Further provisions of the Public Resources Code Section 5097.98 are to be followed as applicable. This impact would be less than significant.

3.2.6 Energy

CEQA Significance Determinations for Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact— Construction of the Build Alternative would result in a short-term increase in energy use from construction equipment and potential traffic delays. Construction best available control technologies, and AMM TR-1 would help conserve energy. The Build Alternative would not result in an increase in vehicle miles traveled, and therefore increases in diesel and gasoline use are not anticipated. These project features and benefits, along with construction avoidance and minimization measures and compliance with Caltrans and state regulations and requirements, would result in a less than significant impact.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact—The Santa Cruz County General Plan/Local Coastal Program contains energy policies related to new building development, but not for transportation projects. As described in Section 3.2.6, while there would be a temporary increase in energy usage during construction, operation of the Build Alternative would reduce energy consumption because the project reduces delay and increases speeds which in turn increases fuel efficiency. Furthermore, the Build Alternative would increase opportunities to use alternative modes of transportation, including transit and construction of Coastal Rail Trail Segment 12. Project design and construction energy conservation features are consistent with state and local policies to reduce energy. Therefore, the project would not conflict with state and local policies to reduce energy and there would be no impacts.

3.2.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42, ii) Strong seismic ground shaking, iii) Seismic-related ground failure, including liquefaction, iv) Landslides; or

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact (a and c) — There are no known active faults in the area. Thus, impacts on construction workers or the traveling public related to surface fault rupture would be less than significant.

The project area, which is influenced mostly by the San Andreas Fault system, has a potential for strong seismic ground shaking. There is no obvious evidence of landslides in the project area. Based on similar structure locations, the soils are not prone to ground failure, such as liquefaction. Additionally, a geotechnical field investigation would be conducted, and a Geotechnical Design Report with recommended design parameters would be prepared per Caltrans' Highway Design Manual (Caltrans 2019a). The project would be designed according to Caltrans' seismic standards, as provided in Caltrans' Highway Design Manual, minimizing the risk to construction workers or the traveling public from strong seismic ground shaking.

There is a low risk for landslides because of the topography and because the project would not involve cuts and fills or steep excavation. There would be no impacts on construction workers or the traveling public.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact — Ground-disturbing earthwork associated with construction at the project site may increase soil erosion rates and loss of topsoil. Compliance with the erosion-related requirements applicable to the project would ensure that construction activities do not result in significant erosion. This impact is considered less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact— The project area is on soils known to not be expansive (i.e., have a high shrink-swell potential) and would be verified during a detailed field investigation conducted during the design phase. All construction and engineered fills would comply with Caltrans' Standard Specifications, and all construction would compact the roadway subgrade in accordance with Caltrans' Standard Specifications. Additionally, minimization

measures in the Geotechnical Design Report, such as the use of subgrade enhancement geotextile and cementitious binder, as well as Best Management Practices, would be implemented to address soil issues, minimizing the risk to construction workers and the traveling public.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact— The project would not require alternative wastewater disposal systems. There would be no impacts.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant With Mitigation Incorporated— As discussed in Section 2.2.4, Paleontology, fossil-bearing sediments can be found within the project boundaries, and fossils could be damaged during earthwork operations. Implementation of a paleontological mitigation plan that includes construction monitoring and fossil salvage, as described in Mitigation Measure PALEO-1, would reduce impacts to less than significant.

3.2.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact— As discussed in Section 3.3, Climate Change, the project would generate temporary construction greenhouse gas emissions and would not result in operational emissions. All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all California Air Resources Board emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce greenhouse gas emissions. With the implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact—As described in Section 3.2.3, the project would not conflict with an applicable plan, policy, or regulation adopted to

reduce the emissions of greenhouse gas because the project is consistent with the Santa Cruz County Regional Transportation Commission's Metropolitan Transportation Plan and the Association of Monterey Bay Area Governments' Regional Transportation Plan/Sustainable Communities Strategy, which considers goals stipulated by Senate Bill 375. The project would, therefore, not conflict with Senate Bill 375. Additionally, the project is consistent with the policies in the applicable city and county general plans; the project would help achieve the goals of providing a safe and efficient transportation system. This impact would be less than significant.

3.2.9 Hazards and Hazardous Materials

CEQA Significance Determinations for Hazards and Hazardous Materials

Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact (a, b)— As discussed in Section 2.2.5, Hazardous Waste and Materials, humans and the environment could be exposed to hazardous conditions from the accidental release of hazardous materials during construction activities. Construction would involve the use of heavy equipment, involving small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous conditions in the project area.

Disturbing either yellow or white pavement markings by grinding or sandblasting, or removing treated wood posts or guardrails, could expose construction workers or the general public to lead chromate and other harmful chemicals unless standard removal protocols are followed. Exposing construction workers or the general public to these hazardous materials or wastes could pose a possible threat to human health. Exposing construction workers or the general public to these hazardous materials or wastes could pose a possible threat to human health. Compliance with local, state, and federal policies, standards, and laws described in Section 3.2.9 would avoid or minimize effects related to hazardous waste and materials. The project would implement AMM-HAZ-1 and AMM-HAZ-2 as identified in Section 2.2.5, Hazardous Waste/Materials. Therefore, this impact would be less than significant.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact—Aptos Junior High School is within 0.25 mile of the project. Humans and the environment could be exposed to various constituents from the accidental release of hazardous materials during construction activities. The use of heavy equipment would involve small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous releases in the project area. Caltrans routinely handles the types of hazardous releases that may occur during project construction through its Standard Specifications and Standard Special Provisions for removal, storage, and disposal of hazardous materials and wastes. This impact would be less than significant.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact—As discussed in Section 2.2.5, Hazardous Waste and Materials, there are hazardous waste and substance sites on the Cortese List within a 1-mile search of the project site. Implementation of AMM HAZ-1 would require a preliminary site investigation be conducted during the project's design phase to determine whether contaminated soil or groundwater would be encountered during project construction activities. Implementation of AMM HA-2 would develop appropriate procedures for handling, reusing, and/or disposing of soils. This impact would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact—The closest public airport is the Watsonville Municipal Airport, which is about 7 miles southeast of the project area. Additionally, no aspect of the project would result in a safety hazard for people living or working in the project area. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact—There may be temporary disruptions to the existing freeway during the construction period. During construction, Standard Measure TR-1 would require that closures be coordinated with emergency service providers, so their services are minimally affected. Project operation would improve traffic delay and allow for formal passing opportunities. The project would make the highway safer, more reliable, and more efficient for emergency service providers and would benefit those served by these providers. The impact would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact— There is the potential for wildland fires in the region, given the moderate Mediterranean climate and wind. The lands to the north of State Route 1 are in a moderate and high fire hazard severity zone, according to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Map for the County of Santa Cruz (California Department of Forestry and Fire Protection 2007). The proposed project could expose workers to fire risk and hazards during construction. Construction of the proposed project could also create an unintended fire. However, standard precautions as those found in the California Division of Occupational Safety and Health (Cal/OSHA) Fire Protection and Prevention guidance to prevent fire incidents such as, no smoking in open areas, requiring spark arrestors on equipment and fire extinguishers be onsite at all times during construction, and vegetation clearing, would reduce the potential for wildland fires. The impact would be less than significant.

3.2.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:

- a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
- b) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact (a, b)— The project area is within the jurisdiction of the Central Coast Regional Water Quality Control Board. The project's receiving waters are Aptos Creek, Valencia Creek, Valencia Lagoon, and the Pacific Ocean.

Potential temporary impacts on existing water quality would result from staging and active construction areas, which could result in the release of fluids, concrete material, construction debris, sediment, and litter beyond the perimeter of the site. Sediment from construction would be minimized by using Caltrans' construction Best Management Practices for stormwater, including silt fence, fiber roll, check dam, concrete wash-out, and street sweeping.

Because the intended acreage of disturbed soil area would be more than 1 acre, a Stormwater Pollution Prevention Plan would be completed to minimize pollution and stormwater runoff during construction (see Section 1.4.1, Build Alternatives). A Stormwater Pollution Prevention Plan would be prepared by the contractor and approved by Caltrans. The Stormwater Pollution Prevention Plan would address potential temporary impacts via the

implementation of appropriate Best Management Practices. Further, groundwater dewatering would not be necessary for project operation and maintenance activities. The project would not violate any water quality standards or waste discharge requirements or result in substantial degradation of surface or groundwater quality. Therefore, impacts on water quality would be less than significant.

During construction, potentially sediment-laden flow can result from runoff over disturbed soil areas that enter storm drainage facilities or directly discharge into the receiving water bodies, increasing the turbidity, decreasing the clarity, and potentially impacting the beneficial uses of the receiving water bodies. Earthmoving and other construction activities could cause minor erosion and runoff of topsoil into the drainage systems along the project corridor and Coastal Rail Trail Segment 12 during construction, which could temporarily affect water quality in local waterways.

Implementation of water quality project features required for all construction projects in compliance with federal, state, and local requirements would minimize the potential for water quality impacts from runoff entering storm drains. The impact would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact— As discussed in Section 2.2.1, Hydrology and Floodplain, increased impervious surfaces could reduce the ability for groundwater recharge within the localized groundwater aquifer system. Soquel Creek and Aptos Creek are both listed in the Water Quality Control Plan for the Central Coast Region as having the groundwater recharge beneficial use. The reduction in the local aquifer and groundwater recharge also has the potential to impact the beneficial uses of groundwater basins. However, considering the size of the groundwater basin, the increase in the impervious surface area (3.61 acres in Caltrans' right-of-way, 6.28 acres for the interim trail in the Santa Cruz County's right-of-way and 6.51 acres for the ultimate trail in Santa Cruz County's right-of-way) would not reduce water infiltration into the groundwater aquifer or cause a widespread, regional change in groundwater levels. To address the additional flows associated with increased impervious surface areas, the project would include stormwater runoff Best Management Practices to collect and retain or detain the additional flows within the project limits, as required by Caltrans' National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System permit and a Stormwater Management Plan. The project is not expected to have a long-term impact on surface water or groundwater. Local aquifer and groundwater recharge could occur during construction, but because the project would comply with the Caltrans Municipal Separate Storm Sewer System permit, Best Management Practices would reduce this

effect. The project would not impede sustainable groundwater management of the basin. The impact would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in substantial erosion or siltation onsite or offsite; ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite; iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) Impede or redirect flood flows?

Less Than Significant Impact (c.i through c.iv)—Earthmoving and other construction activities could cause minor erosion and runoff of topsoil into the drainage systems along the project corridor during construction, which could temporarily affect water quality in local waterways. The standards of the Construction General Permit, Caltrans, and the County of Santa Cruz require the project's contractor to implement a Stormwater Pollution Prevention Plan to comply with the conditions of the Construction General Permit (Standard Measure WQ-1), which would include soil stabilization and other controls to reduce erosion. The impact would be less than significant.

The project would not substantially alter the existing drainage pattern in the area. As discussed in Section 2.2.1, Hydrology and Floodplain, the project would maintain the existing drainage pattern. Additional impervious surfaces would be added, and a Hydromodification Susceptibility Assessment would be required to determine whether the project requires hydromodification management measures. The impact would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant Impact—The potential release of pollutants as a result of project inundation could occur during construction involving sediment or contaminated runoff from disturbed work areas or potential spills that could result in temporary impacts on water resources. However, standard measures, including stabilizing construction areas, and sediment controls and filtration, would be implemented before a flood event to minimize impacts on water resources (Standard Measure WQ-1). Further, the Stormwater Pollution Prevention Plan, which includes provisions to reduce and control discharges other than stormwater, would be implemented.

The release of pollutants due to project inundation during project operation may result from an increased impervious surface area, operation and maintenance activities—including automobile use—and discharges of sediments and other pollutants collected in stormwater and floodwater runoff. The portion of the project within the County's right-of-way would be subject to the site design, source control, runoff reduction, stormwater treatment, and

baseline hydromodification management requirements of the Phase 2 Municipal Separate Storm Sewer System permit. A Hydromodification Susceptibility Assessment would be required to determine whether the project requires hydromodification management measures. Coordination with local, state, and federal water resources and floodplain management agencies would be conducted as necessary during all aspects of the project to discuss these potential floodplain impacts. The impact would be less than significant.

3.2.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact— The project includes the widening of auxiliary lanes along State Route 1 from Freedom Boulevard to State Park Drive, and construction of Segment 12 of the Coastal Rail Trail along the Santa Cruz County Regional Transportation Commission-owned Santa Cruz Branch Rail Line between State Park Drive and Rio Del Mar Boulevard. Both the highway and railroad are linear features that already divide the community. The project would improve travel times and reduce traffic delay on State Route 1. The Bus-on-Shoulder feature would increase the use of public transit, and the trail component would serve as a benefit to the local community by adding additional bicycle and pedestrian facilities and recreational opportunities. Therefore, the project would not physically divide an established community. No impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact— The project is included in the Santa Cruz County Regional Transportation Commission's 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and the Santa Cruz County Regional Transportation Plan. Additionally, the project would not conflict with any policies of the County of Santa Cruz General Plan adopted for the purpose of avoiding or mitigating an environmental impact.

The project would be consistent with policies from the County of Santa Cruz Local Coastal Program, as described in Section 2.1.1. Avoidance, minimization, and mitigation measures, as well as standard measures listed in Chapter 1, would reduce ensure that any impacts related to vegetation removal or riparian areas is consistent with the Local Coastal Program. The project would be consistent with other policies from the Local Coastal Program because it would preserve the park and recreational land uses as stated in the Local Coastal Program and improve access to these resources by decreasing delay along State Route 1. Because the project traverses the

Coastal Zone, a Coastal Development Permit from the County of Santa Cruz would be required. Additionally, consultation with the California Coastal Commission regarding discharges into Critical Coastal Areas and a federal consistency determination would be needed. The impact would be less than significant.

3.2.12 Mineral Resources

CEQA Significance Determinations for Mineral Resources

Would the project:

(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

(b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact (a, b)— There are no designated mineral resource areas in the project area or vicinity, and the project would not impede the extraction of any known mineral resources. There would be no impacts.

3.2.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact—The County of Santa Cruz Municipal Code establishes noise regulations in Chapter 8.30 of its Noise Ordinance, which restricts offensive noise, defined in Chapter 8.30, Section 10, as “any noise which is loud, boisterous, irritating, penetrating, or unusual, or that is unreasonably distracting in any other manner such that it is likely to disturb people of ordinary sensitivities in the vicinity of such noise”, between the hours of 10:00 p.m. and 8:00 a.m. The project is not subject to these ordinances, which are not part of the Local Coastal Program. However, Caltrans would coordinate with local agencies and the public before construction can be performed in noise-sensitive areas during nighttime hours.

Land uses along the State Route 1 project corridor are predominantly residential with pockets of commercial and recreational parcels. Traffic on State Route 1 is the dominant source of noise in the area. As discussed in Section 2.2.7, Noise and Vibration, the traffic noise modeling documented in

the noise study report indicates that traffic noise levels would approach or exceed Caltrans' Noise Abatement Criteria at 53 receptor sites. Noise abatement was considered for affected receptor sites and would meet the criteria of abating noise by at least 5 A-weighted decibels at some sites, but not all. An increase of 12 A-weighted decibels is considered a substantial increase. None of the 107 receptor sites would experience an increase in noise that exceeds 12 A-weighted decibels or more over its corresponding modeled existing noise level. Therefore, this impact would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact— During certain construction phases, processes—such as earthmoving with bulldozers, the use of vibratory compaction rollers, impact pile driving, demolition, or pavement breaking—may cause construction-related vibration impacts such as human annoyance or, in some cases, building damage. The closest sensitive receptors is the Tennis Club of Rio del Mar athletic center located approximately 50 feet from construction areas for the Build Alternative. The use of a large bulldozer during construction of the Build Alternative would generate the highest vibration level of 0.089 peak particle velocity inches per second at a distance of 25 feet. The sensitive receptors may be subject to a ground-borne vibration level of 0.032 peak particle velocity inches per second. This vibration level is considered distinctly perceptible to humans and would not result in community annoyance. In addition, this vibration level would be well below the damage threshold of 0.3 PPV (in/sec) for older residential structures and would not have the potential to damage nearby residential structures. In addition, compliance with local Noise Ordinances and the Caltrans Standard Specifications described above in Section 2.2.7, Noise, would also minimize vibration impacts. Therefore, vibration from the Build Alternative during construction is not expected to exceed thresholds related to structural damage for any of the buildings nearest to construction areas or result in impacts on sensitive receptors from vibration. This impact is considered less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact— The closest public airport is the Watsonville Municipal Airport, which is about 7 miles southeast of the project area. There are no private airstrips in the project vicinity. No impacts would occur.

3.2.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less Than Significant Impact (a, b)— Improvements to State Route 1 and increased alternative modes of travel are expected to reduce delay in the State Route 1 corridor. As stated in Section 2.1.6, Growth, the project is not expected to cause direct impacts related to growth. However, the project could make areas where developable land is still available more appealing for future development if peak commute times are reduced. The project could indirectly contribute to growth pressure in the cities of Watsonville and Marina and the unincorporated communities of Live Oak, Aptos, and Freedom, where future growth could occur. If future growth does occur within those areas and is indirectly influenced by the project, the project would require independent environmental review. Planned growth is described in more detail in Section 2.1.6. The impact would be less than significant.

Section 2.1.7, Relocations and Real Property Acquisition, describes residential and business displacements that would result from potential full acquisition of the properties at 7992, 7994, and 7996 Soquel Drive. The buildings at 7992, 7994, and 7996 Soquel Drive are located on three parcels under title to two owners. The analysis found that, in general, there is sufficient decent, safe and sanitary housing available to meet the needs of the potential displacees and Caltrans' Relocation Assistance Program would be applied to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. The impact would be less than significant with implementation of the avoidance, minimization/mitigation measures found in Section 2.1.7.

3.2.15 Public Services

CEQA Significance Determinations for Public Services

- a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire and Police Protection?

Less Than Significant Impact—The Aptos-La Selva Fire Protection District and Central Fire Protection District provide fire protection and emergency rescue services to the project area. There is one fire station within the project area, located at 300 Bonita Drive, just east of Rio Del Mar Boulevard and south of State Route 1. Police protection and traffic enforcement in the project area are provided by the California Highway Patrol and the Santa Cruz County Sheriff's Department.

The project would not result in direct impacts on fire or police stations and is not expected to significantly impact response times for emergency services associated with the fire station or police/sheriff department personnel. The changes to lane configuration in the project corridor may improve response times of emergency services, allowing emergency service personnel to bypass other vehicles safely and quickly.

During the construction period, temporary closures of off/on-ramps and surrounding surface streets have the potential to affect the response times of emergency service providers. Temporary road closures may temporarily affect certain routes and temporarily increase congestion on surrounding streets. Additionally, temporary closures have the potential to significantly impact access to and from Aptos/La Selva Fire Station Number 2, the California Highway Patrol Santa Cruz Area office, and the Santa Cruz County Sheriff's Center. Detours and coordination with emergency service providers would be provided to ensure access is maintained throughout construction and that emergency service providers receive advance notice of detours and changes to access routes. Traffic would be shifted to allow continued two-way operation of State Route 1, as described in the Transportation Management Plan. Any required closures would be coordinated with emergency service providers, so their response times are not affected. Delays in access, although temporary, could disrupt normal operations and may result in impacts on emergency services. The impact would be less than significant.

Schools and Other public facilities?

Less Than Significant Impact—It is expected that most public and government services and facilities, including emergency service centers in the project vicinity, would be unaffected during construction because the existing roadways would remain open and functional during construction. Implementation of a Transportation Management Plan during construction would reduce potential impacts on the response times of emergency service providers (including law enforcement, fire protection, and ambulance service providers) caused by potential construction delays on area roadways. The long-term effect of the project would be to reduce delay and bottlenecks and thereby enhance accessibility to the greater State Route 1 project area, which would benefit the community facilities.

Parks?

Less Than Significant Impact—The proposed project would require a temporary construction easement in Aptos Village County Park, immediately adjacent to the Santa Cruz Branch Line right of way, for construction of Coastal Rail Trail Segment 12. No other use of public park land is proposed. Additionally, implementation of the proposed project would require temporary road and ramp closures and detours during construction along State Route 1. Temporary road and ramp closures during construction may affect certain routes to nearby parks, beaches, and other recreational facilities in the vicinity of the project; however, detours would be established to ensure access to those facilities is maintained throughout construction.

No permanent impacts to Aptos Village County Park, or any other public parks or recreational facilities would occur. Although no significant impacts to parks or other recreational facilities are anticipated to occur as a result of the proposed project, implementation of a Transportation Management Plan, developed as part of the project construction planning phase, will ensure appropriate detours are established such that access to all facilities is maintained throughout construction. The Transportation Management Plan will also require coordination with and notification of all proposed road closures and detours prior to implementation. The impact is less than significant with implementation of the Transportation Management Plan.

3.2.16 Recreation

CEQA Significance Determinations for Recreation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact—The project would construct a segment of the Coastal Rail Trail for public use which would facilitate access to other parks and recreational facilities. However, use of existing facilities is not expected to be so substantial as to cause physical deterioration to existing recreational facilities. This impact would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less Than Significant Impact—The project would provide an additional recreational facility for public use and enhanced access to an existing park. See Section 3.2.15, Public Services, Parks. The impact is less than significant with implementation of the Transportation Management Plan.

3.2.17 Transportation

CEQA Significance Determinations for Transportation

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact—The project is included in the Santa Cruz County Regional Transportation Commission’s 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and the Santa Cruz County Regional Transportation Plan. In addition, the supplemental traffic analysis prepared for the project states that in terms of vehicle miles traveled, the Senate Bill 743 (Transportation Impact) guidelines have listed auxiliary lanes as a project type that is not likely to lead to measurable or substantial increase in vehicle travel, and transit projects such as the Bus-on-Shoulder element of the project are exempt from Senate Bill 743 analysis.

As stated in Section 2.1.7, the project would not conflict with any applicable plan or policy addressing circulation. There would be no impacts.

b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact—There will be temporary lane closures for construction on State Route 1 and local streets due to widening and replacement of bridges and trail improvements. The traffic management plan (AMM-TR-1) would reduce detour related vehicle miles traveled impacts by avoiding construction during peak hours of travel and keeping one through lane open on local streets. Vehicle trips used for construction purposes would be temporary, and any generated vehicle miles traveled would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation.

The supplemental traffic analysis prepared for the project states that in terms of vehicle miles traveled, the Senate Bill 743 (Transportation Impact) guidelines have listed auxiliary lanes as a project type that is not likely to lead to measurable or substantial increase in vehicle travel. In addition, transit projects such as the Bus-on-Shoulder element of the project are exempt from Senate Bill 743 analysis.

As described in Section 2.1.7, the net change in the countywide vehicle miles traveled due to the project auxiliary lanes is expected to be zero or a small negative value. Project bus-on-shoulder and trail would result in a mode shift from auto to transit, bicycle, and pedestrian modes of transportation, which in turn would result in a countywide net decline of 6,952 vehicle miles traveled per day by 2025 and 8,094 vehicle miles traveled per day by 2045 compared to the No Build Alternative (CDM Smith 2023).

Therefore, the Build Alternative would not have impacts related to vehicle miles traveled and no mitigation measures are necessary.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact—No incompatible uses or hazardous design features are associated with the operation of the project. The project would widen 2.6 miles of State Route 1 and improve traffic operations and safety along this segment of the freeway. The project would also enhance bicycle and pedestrian connections, promote use of alternative modes of transportation, and provide Coastal Rail Trail access across State Route 1.

During construction activities, a short-term increase in the potential for accidents involving motor vehicles and bicycles could occur. Because of the temporary disruption to traffic flow, the presence of construction equipment in the public right-of-way, and the localized increase in traffic congestion, drivers would be presented with unexpected driving conditions and obstacles, potentially increasing automobile accidents. These potential impacts would not substantially increase hazards because people are used to driving through construction areas, and at least one lane of travel in both directions would be open at all times during construction. A traffic control plan (i.e., Transportation Management Plan) would be prepared as part of the project to provide controlled access through the work site during construction. Impacts would be less than significant.

d) Result in inadequate emergency access?

Less Than Significant Impact—The Transportation Management Plan to be prepared and implemented would provide controlled access through the work site during construction. Although traffic would be slowed during construction, continuous access would be provided. This would avoid significant effects that could result from traffic stoppages, such as interruption of emergency access or access to homes and commercial businesses. The impact would be less than significant.

3.2.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact—The cultural resources studies and Native American consultation conducted for the project did not identify any tribal cultural resources within the project area.

3.2.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact—The project would not require water or wastewater treatment because no potable water and/or toilets would be provided as part of the project. The project would require utilities relocations including sanitary sewer and electric utility poles adjacent to Moosehead Drive and a gas line along the Coastal Rail Trail Segment 12 route for the ultimate trail improvements, and other utility appurtenances. This temporary impact would be less than significant.

The project design includes drainage system improvements and permanent stormwater treatment facilities for the State Route 1 and Coastal Rail Trail Segment 12 improvements, which would minimize the potential for discharges of pollutants to nearby storm drains. Additionally, vegetative areas would allow for infiltration and water quality treatment. The project would be designed per the objectives of Caltrans' National Pollutant Discharge Elimination System Permit requirements and related stormwater requirements to reduce runoff and the volume of entrained sediment. Caltrans' stormwater quality manuals also include Best Management Practices to be implemented for erosion and sediment control and material management. The implementation of Best Management Practices would minimize impacts on drainage and water quality during long-term operations at the site. The impact would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact— During operation, similar to existing conditions, the project would require nominal amounts of water for the maintenance of plants and landscaping along the project corridor. During construction, water would only be used for dust control along the project corridor and trail Coastal Rail Trail Segment 12 route. Due to the minimal amount of water that would be required for dust control, the impact on the existing water supply would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact—The project would not generate wastewater. If dewatering is necessary for areas where groundwater is encountered, depending on surface and groundwater levels at the time of construction, a permit for the discharge of extracted groundwater would be obtained from the Regional Water Board. Dewatering activities would also comply with the Caltrans Standard Specifications (see Standard Measure WQ-3). The discharge would be consistent with Regional Water Board requirements and, as such, would not result in a violation of water quality standards or waste discharge requirements. The impact would be less than significant.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact—Project construction would generate solid waste. However, the amount of solid waste generated by construction would not be substantial, would be limited to the construction time period and would not result in a substantial reduction in the capacity of a landfill. Therefore, this impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact— No impacts on local solid waste facilities are expected. The project would comply with all federal, state, and local statutes and regulations related to solid waste. Additionally, generated solid waste would be recycled when possible. No impacts would occur.

3.2.20 Wildfire

CEQA Significance Determinations for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a-d) Substantially impair an adopted emergency response plan or emergency evacuation plan; or due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; or require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact— There is the potential for wildland fires in the region, given the moderate Mediterranean climate and wind. However, the project site is not in a very high fire hazard severity zone, according to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Map for the County of Santa Cruz (California Department of Forestry and Fire Protection 2007). The project would implement a traffic control plan that would keep lanes open for emergency access at all times. The impact would be less than significant.

3.2.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant With Mitigation Incorporated—The project is in a primarily coastal environment along an existing portion of State Route 1. Implementation of Caltrans' standard measures, which are described in Chapter 1, as well as the avoidance, minimization, and mitigation measures described in Chapter 2, would ensure that the construction and operation of the project would not reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. AMMs regarding protection of cultural and historic resources are described in Section 3.2.5 and AMMs, including compensatory mitigation, is

described in Section 2.3. Impacts would be less than significant with mitigation.

b) Does the project have impacts that are individually limited, but cumulatively considerable (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Significant and Unavoidable Impact—The development has the potential to further reduce the visual quality in the State Route 1 corridor. Visual impacts of the project include the loss of mature trees along the project corridor, the length of time required for replacement trees to reach maturity, and the inability to fully mitigate the visual impacts of the project. These factors suggest that the incremental contribution of the project to the cumulative visual impact may be considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Significant and Unavoidable Impact—The implementation of the project could impact aesthetics. The implementation of Caltrans’ standard measures and avoidance, minimization, and mitigation measures described in Section 2.1.4, Visual/Aesthetics, would reduce these impacts, but not below a significant level. Mitigation measures include aesthetic treatments on project features such as sound walls and retaining walls, and measures to reduce impacts to trees and vegetation (such as replanting). As discussed in the Aesthetics section in Chapter 2 and Section 3.2.1, Aesthetics, impacts related to visual resources would be significant and unavoidable. Cumulatively considerable impacts are described in Section 2.4.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth’s climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to greenhouse gas emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to greenhouse gas emissions generated from the production and use of fossil fuels.

Human activities generate greenhouse gases consisting primarily of carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons. Carbon dioxide is the most

abundant greenhouse gas; while it is a naturally occurring and necessary component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated carbon dioxide that is the main driver of climate change. In the U.S. and in California, transportation is the largest source of greenhouse gas emissions, mostly carbon dioxide.

The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important mitigation strategy is to reduce greenhouse gas emissions. In the context of climate change (as distinct from CEQA and NEPA), "mitigation" involves actions to reduce greenhouse gas emissions or to enhance the "sinks" that store them (such as forests and soils) to lessen adverse impacts. "Adaptation" is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source greenhouse gas reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and greenhouse gas emissions reduction at the project level.

NEPA (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration recognizes the threats that extreme weather, sea level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. The Federal Highway Administration therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values— "the triple bottom line of sustainability" (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) as amended by the Energy Independence and Security Act of 2007; and Corporate Average Fuel Economy Standards. This act established fuel economy standards for on-road motor vehicles sold in the United States. The U.S. Department of Transportation's National Highway Traffic and Safety Administration sets and enforces the CAFE standards based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States. The Environmental Protection Agency calculates average fuel economy levels for manufacturers, and also sets related greenhouse gas emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation's energy security, saves consumers money at the pump, and reduces greenhouse gas emissions (U.S. DOT 2014).

The U.S. Environmental Protection Agency published a final rulemaking on December 30, 2021, that raised federal greenhouse gas emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated greenhouse gas emissions standards will avoid more than 3 billion tons of greenhouse gas emissions through 2050. In April 2022, the National Highway Traffic Safety Administration announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (U.S. Environmental Protection Agency 2022a; National Highway Traffic Safety Administration 2022).

State

California has been innovative and proactive in addressing greenhouse gas emissions and climate change by passing multiple Senate and Assembly bills and executive orders including, but not limited to, the following:

Executive Order S-3-05 (June 1, 2005): The goal of this Executive Order is to reduce California's greenhouse gas emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and Senate Bill 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 greenhouse gas emissions reduction goals outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond

2020 (Health and Safety Code Section 38551(b)). The law requires California Air Resources Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. The California Air Resources Board readopted the low carbon fuel standard regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 greenhouse gas reduction goals.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires California Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under Assembly Bill 32.

Executive Order B-30-15 (April 2015) establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs California Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO_{2e}). greenhouse gases differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. Carbon dioxide is the most important greenhouse gas, so amounts of other gases are expressed relative to carbon dioxide, using a metric called "carbon dioxide equivalent". The global warming potential of carbon dioxide is assigned a value of 1, and the GWP of other gases is assessed as multiples of carbon dioxide. Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, Chapter 249, 2016, codifies the greenhouse gas reduction targets established in Executive Order B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Senate Bill 1386, Chapter 545, 2016, declared “it to be the policy of the state that the protection and management of natural and working lands ... is an important strategy in meeting the state’s greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.”

Senate Bill 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state’s goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Senate Bill 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires California Air Resources Board to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing greenhouse gas emissions.

Assembly Bill 1279, Chapter 337, 2022, The California Climate Crisis Act: This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85% below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires ARB to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

3.3.2 Environmental Setting

The proposed project is in an urban area of Santa Cruz County with a well-developed road and street network. The project area is mostly comprised of urban and built-up land with small portions of forested areas on the northern and southern edges of State Route 1. These forested areas generally serve as vegetated buffers between State Route 1 and adjacent land uses and none of these areas serve as active lumber production or other timberland use. State Route 1 is heavily used during peak hours (7:00 a.m. to 8:00 a.m. and 4:00 p.m. to 5:00 p.m.). The 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy guides transportation development in the project area. The Santa Cruz County General Plan Conservation and Open Space element addresses Greenhouse gases in the project area.

Greenhouse Gas Inventories

A greenhouse gas emissions inventory estimates the amount of greenhouse gases discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual greenhouse gas emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. The U.S. Environmental Protection Agency is responsible for documenting greenhouse gas emissions nationwide, and the California Air Resources Board does so for the state, as required by Health and Safety Code Section 39607.4. Cities and other local jurisdictions may also conduct local greenhouse gas inventories to inform their greenhouse gas reduction or climate action plans.

National Greenhouse Gas Inventory

The annual greenhouse gas inventory submitted by the U.S. Environmental Protection Agency to the United Nations provides a comprehensive accounting of all human-produced sources of greenhouse gases in the U.S. Total greenhouse gas emissions from all sectors in 2020 were 5,222 million metric tons, factoring in deductions for carbon sequestration in the land sector. Of these, 79 percent were carbon dioxide, 11 percent were methane, and 7 percent were nitrous oxide; the balance consisted of fluorinated gases. Total greenhouse gases in 2020 decreased by 21 percent from 2005 levels and 11 percent from 2019. The change from 2019 resulted primarily from less demand in the transportation sector during the COVID-19 pandemic. The transportation sector was responsible for 27 percent of total U.S. greenhouse gas emissions in 2020, more than any other sector (Figure 3-1), and for 36 percent of all carbon dioxide emissions from fossil fuel combustion. Transportation carbon dioxide emissions for 2020 decreased by 13 percent from 2019 to 2020 but were 7 percent higher than transportation carbon dioxide emissions in 1990 (Figure 3-1) (U.S. Environmental Protection Agency 2022b).

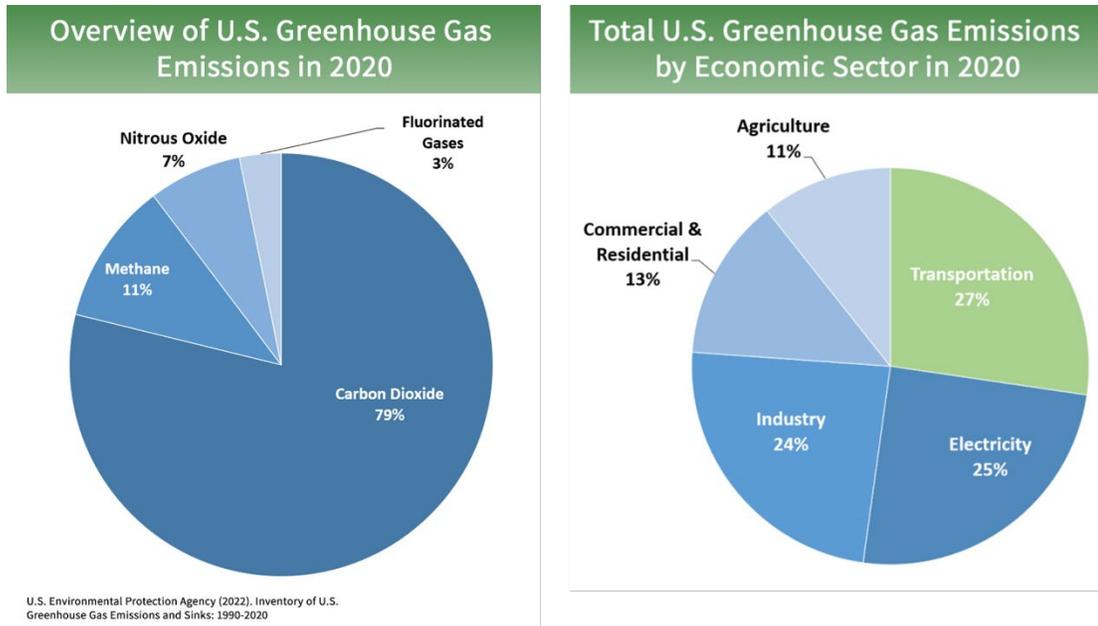


Figure 3-1. U.S. 2020 Greenhouse Gas Emissions (Source: U.S. Environmental Protection Agency 2022b)

State Greenhouse Gas Inventory

The California Air Resources Board collects greenhouse gas emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state’s progress in meeting its greenhouse gas reduction goals. The 2022 edition of the greenhouse gas emissions inventory reported emissions trends from 2000 to 2020. Total California greenhouse gas emissions in 2020 were 369.2 million metric tons of carbon dioxide equivalent, a reduction of 35.3 million metric tons of carbon dioxide equivalent from 2019 and 61.8 million metric tons of carbon dioxide equivalent below the 2020 statewide limit of 431 million metric tons of carbon dioxide equivalent. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which vehicle miles traveled declined under stay-at-home orders and reductions in goods movement. Nevertheless, transportation remained the largest source of greenhouse gas emissions, accounting for 37 percent of statewide emissions (Figure 3-2). (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47 percent of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California’s gross domestic product and greenhouse gas intensity (greenhouse gas emissions per unit of gross domestic product) both declined from 2019 to 2020 (Figure 3-2). It is expected that total greenhouse gas emissions will increase as the economy recovers over the next few years (California Air Resources Board 2022a).

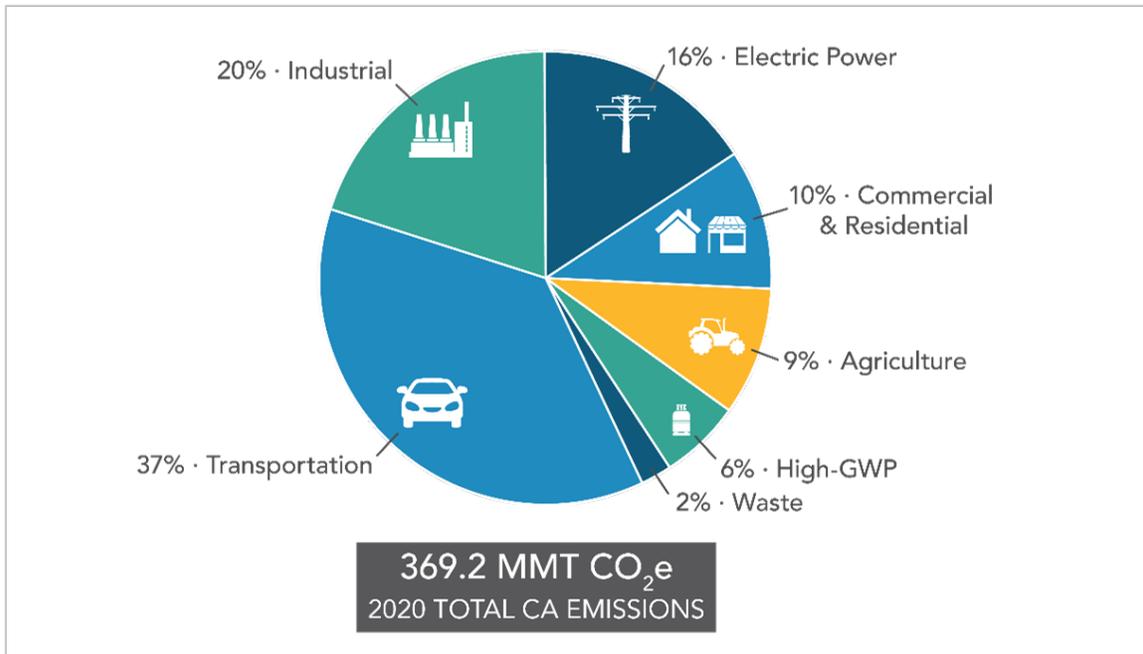


Figure 3-2. California 2020 Greenhouse Gas Emissions by Scoping Plan Category (Source: California Air Resources Board 2022a)

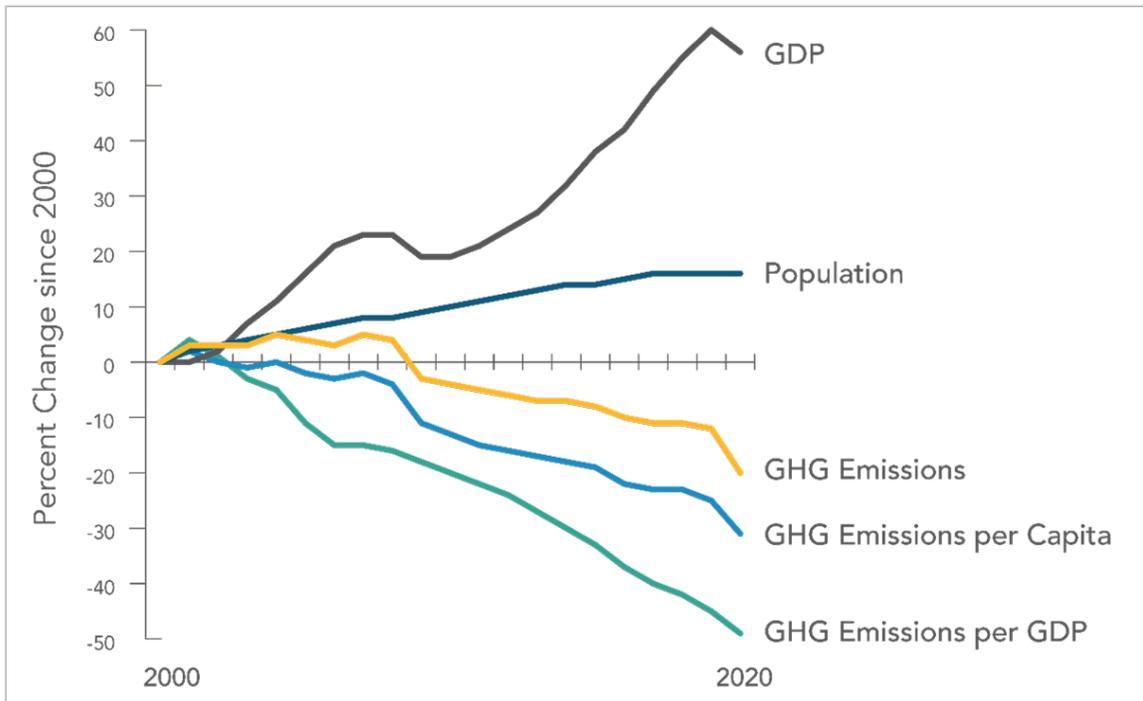


Figure 3-3. Change in California Gross Domestic Product, Population, and Greenhouse Gas Emissions Since 2000 (Source: California Air Resources Board 2022a)

Assembly Bill 32 required the California Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions to 1990 levels by 2020 and to update it every five years. The California Air Resources Board adopted the first scoping plan in 2008. The second updated plan, *California’s 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and Senate Bill 32. The draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (California Air Resources Board 2022b).

Regional Plans

The California Air Resources Board sets regional greenhouse gas reduction targets for California’s 18 Metropolitan Planning Organizations to achieve through planning future projects that will cumulatively achieve those goals and reporting how they will be met in the Regional Transportation Plan/ Sustainable Communities Strategy. Targets are set at a percent reduction of passenger vehicle greenhouse gas emissions per person from 2005 levels.

The proposed project is included in the Association of Monterey Bay Area Governments’ 2045 Metropolitan Transportation Plan/Sustainable Communities Strategy. The regional reduction target for Association of Monterey Bay Area Governments is -6 percent by 2035 (ARB 2021b).

The project is within the jurisdiction of the Santa Cruz County Regional Transportation Commission and is included in the 2040 Regional Transportation Plan for Santa Cruz County. The 2040 Regional Transportation Plan identifies goals to work toward a sustainable transportation system that addresses the current and future transportation challenges in the county, including congestion, safety, and maintenance. Additional relevant plans are shown below in Table 3-1.

Table 3-1. Regional and Local Greenhouse Gas Reduction Plans

Title	Greenhouse Gas Reduction Policies or Strategies
Association of Monterey Bay Area Governments 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and Regional Transportation Plans for Monterey, San Benito, and Santa Cruz Counties (adopted June 2018)	Integrated multi-modal network; Expand the public transit network; Strategic capacity and technology enhancements to existing highways; Identify a list of projects that will add and enhance walking and biking facilities; Transportation Systems Management measures; Transportation Demand Management
Santa Cruz County 2040 Regional Transportation Plan (Adopted June 2018)	Implement transportation system management programs and projects on major roadways to increase efficiency; decrease vehicle miles traveled; improve multi-modal access; ensure network connectivity and reduce conflict by improving bicycle, pedestrian, and transit networks; locate new facilities close to existing services

Title	Greenhouse Gas Reduction Policies or Strategies
County of Santa Cruz Climate Action Strategy (Adopted February 2013)	Public education about climate change and the impacts of individual actions; reduce vehicle miles traveled through Santa Cruz County and regional long range planning efforts; increase bicycle ridership and walking through incentive programs and investment in bicycle and pedestrian infrastructure and safety programs; increase employee use of alternative commute modes.

3.3.3 Project Analysis

Greenhouse gas emissions from transportation projects can be divided into those produced during the operation of the State Highway System (operational emissions) and those produced during construction. The main greenhouse gases produced by the transportation sector are carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Carbon dioxide emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of methane and nitrous oxide. A small amount of hydrofluorocarbon emissions related to refrigeration is also included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, Section 21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project’s contribution is unlikely to be significant by itself” (Cleveland National Forest Foundation versus San Diego Association of Governments (2017) 3 California 5th 497, 512). In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to reduce delay and improve system reliability and safety, to improve traffic operational movements with auxiliary lanes, to enhance bicycle and pedestrian connectivity and safety, and to promote alternative transportation modes. The project will not increase the vehicle capacity of the roadway. This type of project generally causes minimal or no increase in operational greenhouse gas emissions. Because the project would not increase the number of travel lanes on State Route 1, no increase in vehicle miles traveled would occur. While some greenhouse gas emissions during the construction period would be unavoidable, no increase in operational greenhouse gas emissions is expected.

Construction Emissions

Construction greenhouse gas emissions would result from material processing and transportation, onsite construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

The use of long-life pavement, improved traffic management plans, and changes in materials can also help offset emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all California Air Resources Board emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce greenhouse gas emissions.

CEQA Conclusion

While the proposed project will result in greenhouse gas emissions during construction, it is expected that the project will not result in any increase in operational greenhouse gas emissions. The project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With the implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

With the implementation of greenhouse gas- reduction measures during construction, the impact would be less than significant for construction emissions. The long-term operation of the Build Alternative would decrease greenhouse gas emissions slightly relative to existing conditions. This impact would be less than significant. Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

3.3.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

In response to Assembly Bill 32, California is implementing measures to achieve emission reductions of greenhouse gases that cause climate change. Climate change programs in California are effectively reducing greenhouse gas emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon, and cleaner future while maintaining a robust economy (California Air Resources Board 2022d).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 greenhouse gas emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the state's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (Office of Planning and Research 2015). The Office of Planning and Research later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with Executive Order B-55-18 and Assembly Bill 1279 (Office of Planning and Research 2022).

The transportation sector is integral to the people and economy of California. To achieve greenhouse gas emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement.

Greenhouse gas emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and a reduction in vehicle miles traveled. Reducing today's petroleum use in cars and trucks by 50 percent is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2015).

In addition, Senate Bill 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision-making. Trees and vegetation in forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement

near- and long-term actions to accelerate the natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022a) released *Natural and Working Lands Climate Smart Strategy*, with a focus on nature-based solutions.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Executive Order B-30-15, issued in April 2015, and Senate Bill 32 (2016), set an interim target to cut greenhouse gas emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

Climate Action Plan for Transportation Infrastructure

The California Action Plan for Transportation Infrastructure builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing greenhouse gas emissions in transportation, which account for more than 40 percent of all polluting emissions, to reach the state's climate goals. Under the California Action Plan for Transportation Infrastructure, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Transportation Plan

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The California Transportation Plan 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide greenhouse gas emissions reduction targets and increase resilience to climate change. It demonstrates how greenhouse gas emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan

The *Caltrans 2020-2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and

implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a vehicle miles traveled monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 Climate Change (June 22, 2012) established a department policy to ensure coordinated efforts to incorporate climate change into departmental decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce greenhouse gas emissions and identifies additional opportunities for further reducing greenhouse gas emissions from department-controlled emission sources in support of departmental and state goals.

Project-Level Greenhouse Gas Reduction Strategies

Project features include new and expanded bicycle and pedestrian facilities and improved bike lane connectivity, which would support non-motorized modes of transportation.

Bus-on-Shoulder facilities would enable buses to use the shoulder lane, avoiding traffic delay and shortening travel time.

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

- **Standard Measure AQ-4:** The construction contractor shall properly tune and maintain construction equipment and vehicles.
- **Standard Measure AQ-5:** The construction contractor shall use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- **Standard Measure AQ-8:** All on-road and off-road diesel equipment shall not idle for more than 5 minutes. The contractor shall post signs in the designated queuing areas and/or job sites to remind drivers and operators of the 5-minute idling limit. For non-diesel equipment, idling time for lane closure during construction shall be restricted to 10 minutes in each direction.
- **Standard Measure AQ-12:** The construction contractor shall route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads.

- **AMM-VA-11 Landscaping and Revegetation.** During design and construction, landscape and revegetate disturbed areas to the greatest extent feasible (given Caltrans' setback and maintenance requirements). Vegetation absorbs carbon dioxide.

3.3.5 Adaptation

Reducing greenhouse gas emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfires can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under the National Environmental Policy Act assignment, Caltrans is obligated to comply with all applicable federal environmental laws and Federal Highway Administration National Environmental Policy Act regulations, policies, and guidance.

The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The U.S. Department of Transportation Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of the U.S. Department of Transportation in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services, and operations remain effective in current and future climate conditions” (U.S. DOT 2011). The U.S. Department of Transportation Climate Action Plan of August 2021 followed up with a statement of policy to “accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation infrastructure more climate change resilient now and in the future,” following this set of guiding principles (U.S. DOT 2021):

- Use best-available science
- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

The U.S. Department of Transportation developed its climate action plan pursuant to the federal Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). Executive Order 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize actions on climate adaptation and resilience in their programs and investments (White House 2021).

Federal Highway Administration order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*, December 15, 2014) established Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The Federal Highway Administration has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

California’s Fourth Climate Change Assessment (Fourth Assessment) (2018) is the state’s effort to “translate the state of climate science into useful information for action.” It provides information that will help decision-makers across sectors and at state, regional, and local scales protect and build the resilience of the state’s people, infrastructure, natural systems, working lands,

and waters. The state's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce greenhouse gas emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77 percent increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67 percent of Southern California beaches and inundation of billions of dollars worth of residential and commercial buildings due to sea level rise (State of California 2018).

Sea level rise is a particular concern for transportation infrastructure in the coastal zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco International Airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued Executive Order S-13-08, which focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and a new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018. This executive order also gave rise to the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the *California Climate Adaptation Strategy*, incorporating key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy*, *Wildfire and Forest Resilience Action Plan*, *Water Resilience Portfolio*, and the Climate Action Plan for Transportation Infrastructure (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

Executive Order B-30-15: This order was signed in April 2015 and requires state agencies to factor climate change into all planning and investment

decisions. This order recognizes that the effects of climate change, in addition to sea level rise, also threaten California's infrastructure. At the direction of Executive Order B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017 to encourage a uniform and systematic approach.

Assembly Bill 2800 (Quirk 2016): This bill created the multidisciplinary Climate-Safe Infrastructure Working Group to help actors throughout the state address the findings of California's Fourth Climate Change Assessment. It released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*, in 2018. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and the development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

Project Adaptation Analysis

The Governor's Office of Planning and Research prepared *Planning and Investing for a Resilient California*, a guidebook for state agencies performing climate risk analyses to determine how to integrate climate considerations into planning or investment decisions. The first step is to identify how climate change could affect a project or plan by identifying impacts of concern and assessing the scale, scope, and context of climate disruption. Next, a climate risk analysis can be conducted by selecting climate change scenarios for analysis and selecting an analytical approach. Following that, a climate-informed decision can be made by evaluating the alternatives and design and applying resilient decision principles. Finally, the agency can track and monitor progress by evaluating determined metrics, adjusting as needed. The adaptation analysis evaluates the first two steps to inform a decision for the project.

Assessing the scale, scope, and context of climate disruption for the project means considering the timeframe/lifetime, adaptive capacity, and risk tolerance of the project areas. The guidebook states, “If the expected lifetime of a project is less than 5 years, it may not be necessary to integrate longer-term climate change into the design and analysis.” The project (i.e., roadway improvements along State Route 1) is expected to last far longer than 5 years, so the impacts of extreme events are considered to ensure that planning and investment decisions reflect the current and future climate conditions. In the following sections, the extreme impacts of climate change-based sea-level rise, flooding, and wildfire are addressed. Other extreme weather impacts, such as drought and extreme heat, are also expected as changing climate conditions, but this analysis focuses on conditions that could potentially affect the project and its proposed structures.

Sea Level Rise

Except for the improvements along Soquel Drive, the project is within the Coastal Zone. Therefore, a sea level rise analysis is required in accordance with the California Coastal Commission, California Ocean Protection Council, and Caltrans planning guidance.

The project opening year is 2025 and the design/horizon year is 2045. As a comprehensive approach, sea level rise projections are considered in 2030, through 2100 at every decade. The 2018 California Ocean Protection Council Sea Level Rise guidance acknowledges that current projections beyond 2100 are subject to a higher degree of uncertainty.

Table 3-2 presents the range of sea level rise projections for the Monterey tide gauge in 2030, 2040, 2050 and 2100 for high emissions scenario (IPCC RPC 8.5) with low, medium/high, and extreme risk aversion approaches. Low-Risk Aversion corresponds to a 66 percent probability that sea level rise will reach the specified height by the associated year, Medium/High-Risk Aversion corresponds to a 0.5 percent probability that sea level rise meets or exceeds the specified height (i.e., 99.5 percent chance sea level rise will be at or below this height), and the Extreme Risk Aversion scenario is based on a maximally conservative estimate of sea level rise that could result from loss of the West Antarctic ice sheet by the associated year; this scenario is not assigned any probability of occurrence.

Table 3-2. Monterey Sea Level Rise Projections

Year	Emissions Scenario	Low-Risk Aversion Sea Level Rise Projection (Feet)	Medium/High-Risk Aversion Sea Level Rise Projection (Feet)	Extreme Risk Aversion Sea Level Rise Projection (Feet)
2030	High	0.5	0.8	1.0
2040	High	0.8	1.2	1.7
2050	High	1.1	1.9	2.7
2100	High	3.3	6.9	10.1

The data in Table 3-2 demonstrate that the range of sea level rise projections is from 0.5 feet to 1.0 feet in 2030, from 0.8 feet to 1.7 feet in 2040, from 1.1 feet to 2.7 feet in 2050, and from 3.3 feet to 10.1 feet in 2100. These years are of particular interest to this project because the opening year of 2025 would most closely model the 2030 predictions and the horizon/design year of 2045 would most closely model between the predictions of 2040 and 2050.

The Caltrans Climate Change Vulnerability Assessment District 5 Technical Report (Caltrans 2019b) evaluated the roadways at risk of permanent inundation or exposure from higher sea levels within Caltrans District 5, which includes the County of Santa Cruz and the project area. The technical report used Ocean Protection Council projections in combination with National Oceanic and Atmospheric Administration data and identified no roadway segments in the County of Santa Cruz, including the project area, that would be impacted by up to 6 feet of sea level rise. Furthermore, the technical report did not identify any locations in the project area that would be affected by a combination of sea level rise and storm surge; this was confirmed using the National Oceanic and Atmospheric Administration Sea Level Rise Viewer tool.

The National Oceanic and Atmospheric Administration Sea Level Rise Viewer identifies the project area as at medium vulnerability to the effects of climate change. Project facilities would remain unaffected by sea level rise with about 10 feet of Sea Level Rise (Extreme Risk Aversion in 2100).

Taking a conservative approach, the analysis for the project considers the Extreme Risk Aversion Sea Level Rise in 2030 (1.0 feet), 2040 (1.7 feet), 2050 (2.7 feet), and the Medium/High-Risk Aversion—Low Emissions Sea Level Rise (6.9 feet) and the Extreme Risk Aversion (10.1 feet) Sea Level Rise projections for 2100. The Extreme Risk Aversion Sea Level Rise projection represents the worst-case scenario.

Based on the range of sea level rise projections and the analytical resources available (National Oceanic and Atmospheric Administration Sea Level Rise Viewer, 2019 Caltrans Vulnerability Assessment, and the Ocean Protection Council Sea Level Rise Guidance), maximum sea level rise projections in 2030 (1.0 feet), 2040 (1.7 feet), 2050 (2.7 feet), and 2100 (10.1 feet) would

not have the potential to impact the project area. Project facilities would remain unaffected by sea level rise with about 10 feet of Sea Level Rise and no further consideration of adaptation strategies is warranted.

Precipitation and Flooding

The hydraulics assessment evaluated whether the project would affect 100-year water surface elevations within the project vicinity at these locations (WRECO 2022: 56). Model results showed an increase in water surface elevation of less than one-quarter inch for Aptos and Valencia Creeks. The proposed pedestrian bridges along Coastal Rail Segment 12 would be designed with all grading, piers, and structures outside the base floodplain with projected sea level rise. The proposed grading and retaining wall on State Route 1 to accommodate widening the existing railroad bridge over Aptos Creek would likewise be above the 100-year water surface elevation including sea level rise. The hydraulic model showed the proposed bridge at Aptos Creek would have adequate freeboard during the 100-year flood (approximately 22.8 feet during the 100-year flood, and 19 feet during the 100-year flood with sea level rise) (WRECO 2022: vi).

The sea level rise analysis in this chapter and that conducted for the floodplain evaluation report both concluded that the project would not be vulnerable to inundation by sea level rise of 7 feet plus 100-year storm surge at the likely end of bridge service lives at about 2100 under the medium-high risk aversion scenario.

The District 5 Climate Change Vulnerability Assessment technical report (Caltrans 2019b) reported projected changes in 100-year storm precipitation depth. Mapping shows the project area may experience an up to 10% increase in 100-year storm depth as early as 2025 and through 2085. The project's water quality assessment found that minimal net impervious area would drain to the different receiving waters within project limits and would not change water surface elevation upstream of State Route 1 during a 100-year event with sea level rise (WRECO 2022a: 70–71). As noted for sea level rise, bridge freeboard was found to be more than adequate to pass any increased flows. Furthermore, new drainage systems would be designed to convey 100-year flow, existing undersized culverts would be replaced, and treatment Best Management Practices and hydromodifications to enhance percolation would be conducted in accordance with requirements of Caltrans, Santa Cruz County, and the Central Coast Regional Water Quality Control Board (WRECO 2022a: 18; 2022b: 52). Accordingly, the project is not likely to be affected by the projected relatively small changes in 100-year storm precipitation.

Wildfire

The project area is within a Local Responsibility Area and Moderate Fire Hazard Severity Zone. During construction, Caltrans' 2018 revised Standard

Specification 7-1.02M(2) mandates fire prevention procedures, including a fire prevention plan, to avoid accidental fire starts. Furthermore, the project is in an urban area and is not expected to exacerbate the impacts of wildfires intensified by climate change.

Temperature

It is not anticipated that temperature changes during the project's design life would require adaptive changes in pavement design or maintenance practices.

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Chapter 4 **Comments and Coordination**

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, outreach, and a public scoping meeting. This chapter summarizes the results of these efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

4.1 Scoping Process for the EIR/EA

4.1.1 Public Outreach

A virtual open house was held from September 17, 2020 to October 18, 2020, for the project.

4.1.2 Notice of Preparation and Public Scoping Meetings

A Notice of Preparation was issued for the project on September 17, 2020, and a 30-day comment period lasted from September 17, 2020 to October 19, 2020. The Notice of Preparation discussed potential environmental effects of the proposed project, based on preliminary information, and requested comments from agencies and interested members of the public regarding the significant environmental issues, reasonable project alternatives, and reasonable mitigation measures to be explored in the Project's draft EIR/EA. Comments received from the public on the Notice of Preparation include:

- Project Description – Comments included requests for a full description of all project elements, quantities of materials, measurements of impact areas, including staging and access routes for each alternative
- Purpose and Need – Comments included:
 - Suggesting that the project as proposed would not achieve the stated purpose and need;
 - Advising the consideration of current trends that may affect the purpose and need such as potential decline in individual car travel and resilience with regard to wildfire and higher intensity storms;
 - Statements supporting the project and the proposed improvements.
- Alternatives – Various commenters provided recommendations for alternatives to consider, such as:

- Trail and transit on the rail corridor without auxiliary lanes and Bus-on-Shoulder improvements;
- Bus-only lanes instead of auxiliary lanes;
- Increased frequency of bus service;
- Construction of a trail without rail service;
- Trail designs that would preserve trees;
- Consider each element of the project (auxiliary lanes, Bus-on-Shoulder, and rail trail) separately rather than combining them.
- Special-Status Species – Comments included recommendations such as:
 - Evaluate impacts, including an analysis of light impacts, and include avoidance, minimization and mitigation measures for special-status species including aquatic species, nesting birds, bat species.
 - Avoid all “take” of the State fully protected Santa Cruz long-toed salamander.
- Wetlands and Aquatic Resources – Comments included recommendations such as:
 - Avoid and minimize impacts to wetlands and waters, including areas subject to the Coastal Commission definition of wetland
 - Consider bridge designs that avoid placing piles, foundations, etc., in Aptos Creek
- Sea Level Rise – Comments included recommendations to address potential sea level rise impacts, including risk of future inundation, using guidance prepared by the Ocean Protection Council and Coastal Commission.
- Coastal Access – Comments included recommendations to evaluate opportunities for maximizing coastal access and recreational opportunities along the Santa Cruz Branch railroad.
- Traffic – Comments included recommendations such as:
 - Describe protocols for permitting buses to use highway shoulders and consider whether the proposed transportation improvements would be considered a capacity increasing project.
 - Address safety concerns regarding Bus-on-Shoulder improvements, such as the potential for other motorists to begin driving on the shoulder and remove the availability of the shoulder for true emergencies.
 - Use vehicle miles traveled as the primary evaluation factor for potential transportation and traffic impacts.
 - Evaluate induced travel that may result in the event that the auxiliary lanes are converted to through-traffic lanes in the future.

- Consider vehicle miles traveled reductions that may result from the implementation of high capacity public transit on the new railroad bridges included in the proposed project.
- Address bicycle safety at transitions from the termini of the proposed Coastal Rail Trail segment.
- Property Acquisitions – Comments included addressing the need to inform property owners of the potential acquisitions of private property.
- Parking – Comments included recommending the disclosure of potential reductions of existing parking spaces.
- Construction-phase impacts – Comments included recommending nighttime construction hours to reduce impacts to commuter traffic.
- Water quality -- Comments included concerns regarding the potential reduction in aquifer recharge resulting from increased impervious surface due to highway widening.
- Climate change – Comments included concerns regarding potential effects on carbon emissions due to increased vehicle traffic and loss of mature trees.
- Loss of mature trees – Comments included requesting information on the number, size, and locations of trees to be removed.
- Noise – Comments included recommending the inclusion of future rail service in the noise analysis.
- Project Support or Opposition – Various commenters expressed support or opposition to the project or specific elements of the project.

A virtual public scoping open house was held during the comment period from September 17 to October 18, 2020, to present to the public factors to be considered in the draft environmental document for improvements on this segment of State Route Highway 1 and Segment 12 of the Coastal Rail Trail, and to receive comments. The virtual open house included linked webpages (or “stations”) and other materials that provided information about the project background, proposed improvements, anticipated environmental studies, project funding and schedule, as well as an opportunity to submit comments online. The information that was available during the online open house is described below.

- Homepage. The homepage described the purpose of the open house and explained how to navigate the stations/linked webpages.
- Station 1 – Project Background, Purpose and Need. Station 1 described previous studies that informed the development of the proposed project, as well as the project purpose and the need for the project.
- Station 2 – Proposed Improvements. Station 2 provided a description of the improvements that are proposed to be included in the Project, along

with a map identifying the project area, and a link to a fact sheet regarding the project.

- Station 3 – Environmental Review Process. Station 3 gave an overview of Caltrans' process for evaluating the project's potential environmental impacts. A preliminary summary of potential impacts of the project based on currently available information was also provided, along with a link to the Notice of Preparation .
- Station 4 – Funding and Schedule. Station 4 presented information regarding the project cost and funding sources, along with a project timeline.
- Station 5 – Comments. A fillable form was available on Station 5, to collect written comments from website visitors. Caltrans contact information was also provided, along with instructions for submitting comments by email or regular mail.
- Resources. Items that were available in the Resources section include:
 - Program. A Program webpage was provided, which included information regarding Santa Cruz County Regional Transportation Commission's Highway 1 Corridor Program and provided links to fact sheets regarding various past, ongoing, and proposed improvements.
 - Title VI. A Title VI webpage was provided, describing Caltrans' commitments to implement Title VI of the Civil Rights Act of 1964, which seeks to prevent discrimination in federally funded programs and activities. An online survey was also available for website visitors to complete, to assist Caltrans in carrying out its Title IV responsibilities.
 - PowerPoint. A PDF file of a PowerPoint presentation was provided, which gave an overview of the topics addressed by each station included in the online open house.

4.1.3 Consultation and Coordination with Public Agencies

During the preparation of the technical studies for the project, formal and informal coordination was conducted with the federal, state, and local agencies and entities listed below. The following section is updated in the final environmental document to include additional coordination regarding fish passage and cultural resources.

California Department of Fish and Wildlife

A query of the California Department of Fish and Wildlife California Natural Diversity Database was conducted using the RareFind 5 internet application tool on March 4, 2021 for the search area encompassing the Soquel and Watsonville West, California U.S. Geological Survey 7.5-minute topographic quadrangles and the surrounding quadrangles (Felton, Laurel, Loma Prieta, Moss Landing, and Santa Cruz) (California Natural Diversity Database 2021).

Fish Passage

On March 9, 2022 SWCA Biologists held a conference call with Larissa Clarke, Meg Perry and Sarah Sandstrom from Caltrans District 5 and Robert Stanley and Serena Stumpf from the California Department of Fish and Wildlife to discuss the issue of fish passage as it pertains to the Valencia Creek culvert under State Route 1 and Senate Bill-857. Representatives from Mark Thomas and ICF were also on the call. Based on this call, it was the opinion of the California Department of Fish and Wildlife that this location represented an opportunity to remediate a known fish passage barrier from the state highway system and benefit salmonid fish passage. It is also the California Department of Fish and Wildlife's opinion that this project falls within the requirements of Senate Bill 857 and SHC section 156.3 and section 156.4, and that remediation of the fish passage barrier is required.

On May 16, 2022, Larissa Clarke, Meg Perry, Sarah Sandstrom, and Executive Staff from Caltrans District 5 held a follow up conference call with Craig Weightman and Wesley Stokes from the California Department of Fish and Wildlife to further discuss the Valencia Creek fish passage barriers. Caltrans summarized two upcoming projects in the vicinity of Valencia Creek fish passage barriers on State Route 1 at post mile 9.97 and post mile 9.88, and previous conversations with the California Department of Fish and Wildlife at the staff level to date. A phased approach to correcting fish passage in Valencia Creek was discussed and the California Department of Fish and Wildlife stated that they would need assurances that commit Caltrans to completing both the short-term improvement and longer-term improvement, including documentation that funding has been secured for the future Caltrans project (EA 05-1N900). Caltrans made a commitment to move forward with a larger fix to the fish passage issues at post mile 9.97 and post mile 9.88 through the state SHOPP program funding. Current time estimates put the fish passage project to construction about two years after the start of construction of the Phase 3 Auxiliary Lanes project (05-0C734).

On May 18, 2022, the California Department of Fish and Wildlife replied via email with a meeting summary and indicated that the California Department of Fish and Wildlife is amenable to this project moving forward with incorporating an improvement to the post mile 9.97 fish passage barrier and 05-1N900 will follow up with long-term remediation to the fish passage barrier. The Caltrans project 05-1N900 is also programmed to address fish passage more comprehensively to include post mile 9.88. These improvements would meet the requirement of Senate Bill 857.

On November 17, 2022, a field visit with Caltrans staff and the California Department of Fish and Wildlife was conducted to discuss the fish passage barrier and remediation options. After review of the fish passage concept, the California Department of Fish and Wildlife sent a letter on January 12, 2023 with recommendation and comments.

On April 26, 2023, a field visit with Caltrans, California Department of Fish and Wildlife, and National Marine Fisheries Service was conducted to explain the project and potential fish passage solution options to National Marine Fisheries Service.

On August 9, 2023, a conference call was held with Larissa Clarke from Caltrans District 5, California Department of Fish and Wildlife, National Marine Fisheries Service, the project biologists, and the project development team held a follow up conference call to further discuss the Valencia Creek fish passage solution, and modeling of a channel spanning option was requested by California Department of Fish and Wildlife.

National Oceanic and Atmospheric Administration

An official list of federally endangered and threatened species under the jurisdiction of NOAA Fisheries that may occur in the Biological Study Area, and/or may be affected by the proposed project was obtained on April 1, 2023 using the California Species List Tool – Google KMZ of National Marine Fisheries Service Resources in California.

U.S. Fish and Wildlife Service

An official list of federally endangered and threatened species under the jurisdiction of the U.S. Fish and Wildlife Service that may occur in the Biological Study Area, and/or may be affected by the proposed project was obtained from the Ventura U.S. Fish and Wildlife Service Office via the Information of Planning and Consultation website April 1, 2023 (IPac 2023). Inter-agency consultation with the Service under Section 7 of Federal Endangered Species Act is required for potential effects of the proposed project on steelhead and Tidewater Goby. A Biological Assessment is being prepared by Caltrans and will be submitted to the U.S. Fish and Wildlife Service to initiate Federal Endangered Species Act consultation and request a determination on the effects of the project on monarch butterfly, tidewater goby, California red-legged frog, least Bell's vireo, and southwestern willow flycatcher.

California Native Plant Society

California Native Plant Society's Inventory of Rare and Endangered Plants of California was queried on March 4, 2021 for the Soquel and Watsonville West, California USGS 7.5- minute topographic quadrangles and the surrounding quadrangles (Felton, Laurel, Loma Preta, Moss Landing, and Santa Cruz) (California Native Plant Society Inventory of Rare and Endangered Plants of California, 2021).

U.S. Department of Agriculture

The U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey database (USDA NRCS 2019) was accessed to identify soil

map units in the vicinity of the project site. Soils included on the Hydric Soils List for Santa Cruz County (USCA 2020) were noted where applicable. General Land Office and Rancho Plat maps were acquired from the Bureau of Land Management, Sacramento.

Natural Resources Conservation Service

Landform age was assessed based on soil survey data (Natural Resources Conservation Service 2020) in combination with Far Western's extensive radiocarbon database (with dates from both natural and cultural contexts), specifically dates that are associated with those soil units when available, as well as relative degree of soil development as described for the mapped soil unit, cut-and-fill relationships, and geomorphic position.

State Water Resources Control Board

A search of the State Water Resources Control Board's GeoTracker website was conducted to identify sites that may impact groundwater or have the potential to impact groundwater. The GeoTracker online database contains sites that require groundwater cleanup as well as permitted facilities that could impact groundwater.

Department of Toxic Substances Control

A search of the Department of Toxic Substances Control's EnviroStor Database was conducted to identify environmental regulatory records associated with the project and nearby properties that would indicate environmental conditions (e.g., reported releases of hazardous substances and/or petroleum products), which may have the potential to adversely impact the project corridor and surrounding vicinity.

Native American Heritage Commission and Coordination with local Native American Tribes

Caltrans has initiated the tribal consultation and outreach process per the National Historic Preservation Act Section 106 and AB 52. Consultation with the Native American Heritage Commission and local Native American representatives was conducted by Caltrans with assistance from Far Western. Far Western requested a Sacred Lands File search with the Native American Heritage Commission. The following summarizes the results of this outreach.

- A request for a search of the Sacred Lands File and list of tribal representatives was sent to the Native American Heritage Commission on April 28, 2020, by Far Western Staff Archaeologist Nikki Wu. The Native American Heritage Commission responded on April 29, 2020, with positive results for sacred lands within the vicinity of the Area of Potential Effects and suggested coordination with the Costanoan Ohlone Rumsen-Mutsun Tribe for additional information. In addition, the Native American Heritage

Commission provided a list of five tribal representatives for Santa Cruz County. Ms. Wu initiated coordination and sent letters to each of the individuals on the list on May 1, 2020.

- One response, from Valentin Lopez of Amah Mutsun Tribal Band, was received; he requested that a Native American monitor be present for all ground-disturbing activity within 400 feet of known cultural resources sites and waterways. In addition, he requested Far Western reach out to Rob Cuthrell to discuss the project and make arrangements for a monitor. Formal consultation, and follow-up correspondence with Chairman Lopez and the remaining tribal representatives, was conducted by Caltrans District 5 staff. Lastly, Native American representative Esak Ordoñez of the Amah Mutsun Tribal Band participated in the test excavations at CA-SCR-2/H and CA-SCR-222/H.
- On June 13 and 24, 2022, five historical organizations were contacted to notify them of the project and inquire whether they had any special interest in or knowledge of the historic properties within the Area of Potential Effects. To date, no responses have been received.

On November 17, 2023, letters (via email) were sent by Caltrans to the following Native American contacts.

- Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Coastanoan
- Monica Arellano, Muwekma Ohlone Indian Tribe of the SF Bay Area
- Valentin Lopez, Chairperson, Amah Mutsun Tribal Band
- Patrick Orozco, Chairperson, Costanoan Ohlone Rumsen- Mutsun Tribe
- Irenne Zwierlein, Chairperson, Amah Mutsun Tribal Band of Mission San Juan Bautista

The primary purpose of this latest correspondence was to inform Tribes of the testing results and to give them the opportunity to review the ESA Action Plan.

In response to two returned emails (Ann Marie Sayers and Monica Arellano) letters were sent via postal service on November 20, 2023. To date, one response, from Alec Apodaca of the Amah Mutsun Tribal Band, was received on December 1, 2023. In his response, Alec Apodaca confirmed receipt of project information and asked about the possibility of Native monitoring for areas near the environmentally sensitive areas. Caltrans will continue consultation as the Project progresses. No other responses have been received to date

Far Western facilitated a record search for cultural resources that included the California Historical Resources Information System. In addition to official maps and records on file at the California Historical Resources Information

System, the following inventories, publications, and technical studies were consulted as part of the cultural resources record search:

- California Inventory of Historical Resources (1976 and updates)
- Office of Historic Preservation's Historical Property Data File, which includes:
 - National Register of Historic Places
 - California Register of Historical Resources
 - California State Historical Landmarks (1996 and updates)
 - California State Points of Historical Interest (1992 and updates)
- Office of Historic Preservation Archeological Determinations of Eligibility

The following interested parties were contacted on April 28, 2023:

- Santa Cruz Trains
- Santa Cruz Museum of Art and History
- Aptos History Museum
- Santa Cruz County Railroad Historical Society
- Santa Cruz County Historic Resources Commission

The following interested parties were contacted on August 29, 2023:

- Aptos History Museum
- Santa Cruz County Historic Resources Commission

To date, two responses were received. The first, from the Aptos History Museum, was regarding two archaeological sites (CA-SCR-2/H and CA-SCR-222) and two historic-era properties - Arano House (7996 Soquel Drive) and the Judge Rice House (7992 Soquel Drive). Caltrans responded to the Aptos History Museum on May 15, 2023.

The Santa Cruz County Historic Resources Commission provided comments on the environmental document, including some comments regarding the Judge Rice House, Jose Arano House, and the Southern Pacific Railroad Bridge (36-0011).

ICF sent letters August 29, 2023 to the Aptos History Museum and the Santa Cruz County Historic Resources Commission describing the results of additional investigations conducted for the Jose Arano House (7996 Soquel Drive) and the Judge Rice House (7992 Soquel Drive). These results confirmed that the previous evaluations for these properties were correct that neither the Rice House nor the Arano House are eligible for listing on the NRHP or the CRHR. The letter also noted that the Aptos Creek Bridge is a

vehicle-bearing concrete bridge that is outside the project APE and therefore will not be affected by the project. No other responses have been received.

Paleontological Record Search

A paleontological record search was conducted for the project using the institutional databases at the University of California Museum of Paleontology and the Santa Cruz Museum of Natural History. The Paleobiology Database was also consulted as part of the paleontological record search for the project.

State Historic Preservation Officer

On January 26, 2023, Caltrans submitted written reports to the State Historic Preservation Officer including the Archaeological Survey Report, Historic Resources Evaluation Report, and Historic Property Survey Report.

In their reply on March 20, 2023, the State Historic Preservation Officer concurred that the Santa Cruz Railroad is eligible for the National Register of Historic Properties under Criterion A, but did not agree with the period of significance (1876–1908). Rather, based on the properties associated with the railroad and when rail service to Watsonville concluded, the State Historic Preservation Officer suggested that 1938 would be a more appropriate end date for the period of significance. In addition, the State Historic Preservation Officer did not concur with Caltrans' initial determination of ineligibility of the two archaeological resources in the Area of Potential Effect (CA-SCR-2/H and CA-SCR-222/H).

In response to these comments, on April 12, 2023, Caltrans submitted a revised Historic Property Survey Report including an updated Historic Resources Evaluation Report with revised Department of Parks and Recreation 523 forms for the Santa Cruz Railroad (expanding the period of significance from 1908 to 1938) and new Area of Potential Effects maps that fully encompassed the boundaries of the archaeological sites CA-SCR-2/H and CA-SCR-222/H.

On May 15, 2023, the State Historic Preservation Officer concurred with the revised period of significance for the Santa Cruz Railroad and acknowledged the revised APE and that Caltrans will consider both archaeological sites eligible in accordance with Stipulation VIII.C.3 of the Section 106 PA.

On November 29, 2023, the State Historic Preservation Officer was contacted with a request for concurrence with the Finding of No Adverse Effect with a revised Section 106 PA Stipulation from VIII.C.3 to Stipulation VIII.C.4 . In a letter dated December 14, 2023, the State Historic Preservation Officer concurred with the project's effects. The finding for the project as a whole is "no adverse effect without standard conditions."

4.2 Circulation of the Draft Environmental Impact Report/Environmental Assessment and Comments Received

A Notice of Completion form and copies of the Draft EIR/EA were submitted to the State Clearinghouse on April 18, 2023. A notice of the availability of the Draft Environmental Impact Report/Environmental Assessment and of the public hearing was published in English in the Santa Cruz Sentinel, and in Spanish in the Pajaronian, and mailed to the distribution list of agencies, organizations and individuals identified in Chapter 6, Distribution List.

The Draft Environmental Impact Report/Environmental Assessment was available for public review for a 45-day period from April 18, 2023 to June 2, 2023. Two public meetings were conducted during the 45-day comment period – one in-person meeting on May 4, 2023 and a virtual meeting May 2, 2023.

Comments received on the Draft Environmental Impact Report/Environmental Assessment and responses to those comments are provided in Appendix I.

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Chapter 5 **List of Preparers**

5.1 Caltrans

This document was prepared by the following Caltrans Oversight staff:

- Larissa Clarke, Environmental Scientist (Natural Sciences). M.S., Marine Resource Management, Oregon State University; B.S., Environmental and Natural Resources, Clemson University; 9 years of experience in watershed conservation and restoration, ecology, and environmental planning. Contribution: oversight of Natural Environment Study and Jurisdictional Delineation.
- Kaya Wiggins, Environmental Scientist (Archaeology) M.A. in Applied Anthropology, California Polytechnic State University, Humboldt; B.S. Anthropology and Geography, California Polytechnic State University, San Luis Obispo; 10 years' experience doing archaeology in California. Contribution: oversight of Archaeology study.
- Meg Perry, Environmental Scientist (Natural Sciences). B.S. Soil Science, California Polytechnic State University, San Luis Obispo; 17 years of experience in California biology and habitat studies, emphasizing botany, wetland science, permitting, and environmental compliance. Contribution: oversight of the Natural Environment Study and Jurisdictional Delineation.
- Morgan Robertson, Senior Environmental Scientist (Natural Sciences). M.S., Wildlife Biology, University of Alaska, Fairbanks; B.S., Biology, University of California, Davis; more than 20 years of biology experience. Contribution: oversight of the Natural Environment Study and Jurisdictional Delineation.
- Pete Riegelhuth, Certified Professional in Erosion and Sediment Control Number 5336, National Pollutant Discharge Elimination System/Stormwater Coordinator, Landscape Associate. B.S. Landscape Architecture, California Polytechnic State University, San Luis Obispo; 5 years of experience as District Construction Stormwater Coordinator and 17 years as National Pollutant Discharge Elimination System/Stormwater Coordinator. Contribution: oversight of Stormwater Data Report and Water Quality Report.
- Daniel Leckie, Environmental Scientist (Architectural History). M.S., Historic Preservation, The University of Vermont; B.A., American History and Sociology, State University of New York at Stony Brook; over 8 years of experience in the fields of Architectural History and Historic Preservation Planning. Contribution: oversight of architectural history studies.
- Rajvi Koradia, Environmental Engineer. M.S., Civil and Environmental Engineering, San Jose State University; B.S., Environmental Engineering,

L.D. College of Engineering, Ahmedabad, India; 4 years of environmental engineering experience. Contribution: oversight of water quality, air quality, and energy studies.

- Karl Mikel, Senior Environmental Engineer. M.S., Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo; B.S., Environmental Engineering; California Polytechnic University, San Luis Obispo; 14 years of experience in environmental engineering. Contribution: oversight of water quality study.
- Shelly Donohue, Engineering Geologist. M.S., Earth and Environmental Sciences, Vanderbilt University; B.S., Biology, B.S. Earth Sciences, University of Washington; 10 years of experience in geology, paleontology, and environmental planning. Contribution: oversight of paleontology study.
- Kristen Langager, Professional Landscape Architect CA 6427, Associate Landscape Architect. Bachelor of Science, Landscape Architecture, California Polytechnic State University, San Luis Obispo; 16 years of experience in the field of Landscape Architecture. Contribution: project Visual Impact Assessment oversight.
- Isaac Leyva, Professional Geologist CA 9842. Engineering Geologist. Bachelor of Science, Geology, California State University, Bakersfield; 34 years of experience in the fields of petroleum geology, environmental geology, and geotechnical engineering. Contribution: Hazardous Waste and Water Quality Assessment project oversight.
- Lara Bertaina, Senior Environmental Scientist. B.A., Environmental Studies and Planning, Sonoma State University; 3 years of urban planning and 23 years of environmental planning experience. Contribution: environmental coordination oversight and oversight of preparation of the Environmental Impact Report/Environmental Assessment.
- Julia Mousavi, Environmental Scientist. B.S., Environmental Management and Protection, California Polytechnic State University, San Luis Obispo; 5 years of environmental planning experience. Contribution: oversight of technical studies and environmental document.
- Jane Sellers, Associate Environmental Planner. B.A., Journalism, California State University, Fresno; 20 years of environmental compliance experience, focusing on QA/QC and reviewing and editing NEPA and CEQA environmental documents, including Caltrans Web Accessibility for All requirements. Contribution: technical review of the environmental document.
- Claudia Espino, Senior Transportation Engineer, B.S., Civil Engineering, California State University Fresno, 32 years of experience in Transportation Design. Contribution: design oversight.
- Sarah Sandstrom, Environmental Scientist (Natural Sciences). M.S., Aquatic and Fisheries Sciences, University of Washington, Seattle,

- Washington; B.S., Biology, Duke University, Durham, North Carolina; Certificate in Wetland Science and Management, University of Washington, Seattle, Washington; 20 years of experience in ecology and environmental planning and permitting. Contribution: oversight of fish passage assessment and remediation.
- Don Nishikawa, Associate Transportation Engineer, B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 20 years of experience in Central Region Hydraulics Branch. Contribution: oversight of hydraulic studies.
 - Sam Toh, Professional Engineer, Traffic Engineer, C62727/TR2300, Traffic Operation Analyst, Capital Outlay Support. M.S. in Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo, B.S., Engineering Science, California Polytechnic State University, San Luis Obispo; Over 20 years of experience in traffic analysis (Macro and Microsimulation), inter-government review, and 6 years of experience in structural engineering and construction management. Contribution: oversight of traffic studies.
 - Luis Duazo, Senior Transportation Engineer. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 20 years of experience in Project Management. Contribution: Project Management oversight.
 - Md Zahangir Alam, Ph.D., P.E. Transportation Engineer Civil, Office Of Geotechnical Design. Ph.D., Geotechnical Engineering, The University of Texas at Arlington, 6 years of experience in Geotechnical Engineering. Contribution: oversight of geology section.

5.2 Santa Cruz County Regional Transportation Commission

- Sarah Christensen, Professional Engineer, Santa Cruz County Regional Transportation Commission Engineering and Construction Manager. M.S. in Transportation Management, Mineta Transportation Institute; B.S., Civil and Environmental Engineering, San Jose State University; 16 years of experience in transportation project delivery. Contribution: the Santa Cruz County Regional Transportation Commission Highway Program Manager involved with the project development and review of project components.
- Martha Dadala Professional Engineer, Project Manager, MNS Engineers, Inc. B.S., Civil Engineering; M.S., Geotechnical Engineering, National Institute of Technology, Warangal. 30 years of project management, design of highway, interchange and local road projects. Project Manager on behalf of the Project Sponsor, the Santa Cruz County Regional Transportation Commission.
- Guy Preston, Professional Engineer, Santa Cruz County Regional Transportation Commission Executive Director. Civil Engineering,

University of California, Berkeley. 32 years of experience in project delivery and construction management. Contribution: Involved in the project development and review of project components for Santa Cruz County Regional Transportation Commission.

5.3 Mark Thomas

- Zach Siviglia, PE, Project Manager. B.S. in Civil Engineering, California State University, Sacramento. 18 years of experience managing freeway improvements, bridges, highway interchanges, local roadway improvements, bicycle facilities, civil related transit improvements, streetscape designs, and downtown infrastructure improvements. Contribution: Engineering and Design.
- David Williams, PE, Project Engineer, B.S. in Civil Engineering, Monash University, Melbourne, Australia. 37 years of experience planning, designing and managing transportation projects including local street, highway and freeway improvements, interchange improvements, bike/pedestrian facilities, transit and railroad facilities, and managed lane facilities. Contribution: Engineering and Design.
- Marshall Moore, SE, Structures Technical Lead, M.S. in Civil Engineering, University of California, Davis, B.S. in Civil Engineering, San Jose State University. 11 years of experience in the design of transportation projects, including vehicular, pedestrian, light rail, and high-speed rail structures on freeway, local roadway, pedestrian pathway and railway projects. Contribution: Engineering and Design.
- Christine Anderson, Landscape Architecture and Urban Design Lead, BS in Landscape Architecture, California Polytechnic State University San Luis Obispo. Over 30 years of experience managing and designing landscape architectural planning and improvement projects that include specialties of visual and landscape assessments, aesthetic design concepts, tree mitigation and replacement plans, LID treatment design, and landscape concept plans. Contribution: Aesthetic and Landscape Design.

5.4 ICF

- Shilpa Trisal, Environmental Lead. M.C.P., Community Planning, University of Cincinnati, Ohio; B.A., Planning, School of Planning and Architecture, New Delhi, India; 20 years of planning and environmental planning experience. Contribution: Project management, document review, and quality control.
- Lindsay Christensen, Senior Environmental Planner. B.S., Community and Regional Development, University of California, Davis; 17 years of experience in project management and coordination, technical writing, and environmental impact analysis. Contribution: Project management, Summary, Project Description, Cumulative Impacts, document review.

- James Alcorn, Senior Environmental Planner. B.A., Geography, University of Nevada, Reno; 21 years of planning and environmental planning experience Contribution: Coastal Zone, Parks and Recreational Facilities, Growth, Community Character and Cohesion, Relocations, Traffic and Transportation/Pedestrian and Bicycle Facilities, Visual/Aesthetics, Geology, Soils, Seismicity and Topography.
- Tina Sorvari, Senior Environmental Planner. B.A. Anthropology, CSU Sacramento, 22 years' experience in project coordination, technical writing, and environmental impact analysis. Contribution: Utilities/Emergency Services, Cultural Resources, Paleontology, Hazardous Waste/Materials.
- Kate Thompson, Environmental Planner. B.S. Managerial Economics – Environmental and Natural Resource Economics, University of California, Davis; 1 year of experience in environmental impact analysis and technical writing. Contribution: Hydrology, Water Quality, Comments Coordination.
- Shivani Raina, Environmental Planner and Urban Designer. M/C.P., Environmental Planning & Healthy Cities and Urban Design, University of California, Berkeley; B Arch, Architecture, School of Planning and Architecture, New Delhi, India; 5 years of experience in built environment design and planning. Contribution: Air Quality.
- Kelsey Hartfelder, Noise Specialist, B.S., Environmental Science, University of California, Los Angeles; 3 years of experience in technical writing and environmental impact analysis. Contribution: Noise.
- Ali Summers, Environmental Regulatory Specialist. B.S., Wildlife Science, University of Oregon, Corvallis; 18 years of experience in wildlife and plant identification, surveys, and assessments, regulatory permitting, and document preparation. Contribution: Natural Communities, Wetlands, Plants, Animals, Threatened and Endangered Species, Invasive Species.
- Kate Carpenter, Senior Biologist. B.A. Plant Biology, University of California, Davis; 20 years of botanical, aquatic resource, and natural community assessments, land cover map production with technical reporting, and environmental impact analysis. Contribution: Natural Communities, Wetlands, Plants, Animals, Threatened and Endangered Species, Invasive Species.

5.5 LSA Associates, Inc.

- J.T. Stephens, Associate / Senior Noise Specialist. B.S. in Acoustical Engineering, Purdue University. 15 years of experience in Noise and Vibration Analyses. Contribution: Focused Noise Study Report and Focused Noise Abatement Decision Report.

5.6 Paleo Solutions, Inc.

- Alyssa Bell, Principal Paleontologist. Ph.D., Vertebrate Paleontology, University of Southern California; 18 years of experience in paleontological research and mitigation. Contribution: Paleontological Mitigation Plan.
- Elisa Barrios, GIS Technician. B.S. Geology (Environmental Geoscience), California State University, Los Angeles; 2 years of experience in GIS. Contribution: Paleontological Mitigation Plan figures.
- Geraldine Aron, Principal Paleontologist. M.S., Geological Sciences, California State University, Long Beach, California; 23 years of experience in paleontological research and mitigation. Contribution: Stantec Project Manager, QA/QC.
- Jeff Hathaway, Professional Geologist. M.S. Geology, California State University, Fullerton, California; 17 years of experience in paleontological research and mitigation. Contribution: QA/QC.

5.7 Parikh Consultants, Inc.

- Craig Langbein, PG-9447, Registered Geologist. B.S., Geology (Honors); James Cook University, Townsville, Queensland. Registered geologist specializing in structural interpretation; field and pit mapping; remote sensing and GIS; geotechnical monitoring and assessment; mine geology exploration; 3D unmanned aerial aircraft photogrammetry; geochemistry; geophysics; research, assessment, reporting and sampling; Phase I Initial Site Assessment report preparation. Contribution: Preliminary Geotechnical Design Report.
- Kandee Saravanapavan, Professional Engineer, Geotechnical Engineer, C-71739/GE 3040, Project Engineer. B.S. Civil Engineering, University of Peradeniya, M.S. Geotechnical Engineering, New Mexico State University, Las Cruces, NM. 16 years of experience in conducting geotechnical investigations and materials engineering services for a wide spectrum of transportation projects. Contribution: Preliminary Geotechnical Design Report.
- Y David Wang, Professional Engineer. C-52911, Senior Project Engineer/Project Manager. Ph.D., Geotechnical Engineering, U.C. Berkeley, California; M.S., Geotechnical Engineering, U.C. Berkeley, California; B.S., Civil Engineering, National Cheng-Kung University, Taiwan; 35 years of experience in transportation projects, prepares reports in accordance with Caltrans standards for counties, cities, and self-help agencies (measure programs) throughout California. Contribution: QA/QC of the Preliminary Geotechnical Design Report.
- Gary Parikh, Professional Engineer, Geotechnical Engineer, C-24227/GE 666, Principal In-Charge. B.S., Civil Engineering, M.S. University, India; M.S., Geotechnical Engineering, University of California, Berkeley,

California; 48 years of experience in managing, supervising, and conducting geotechnical investigations and materials engineering services. Contribution: Project Manager.

5.8 SWCA Consultants

- Rebecca Doubledee, Senior Biologist. B.S., Zoology, University of California, Santa Barbara, California; M.A., Integrative Biology, University of California, Berkeley, California; 19 years working with threatened and endangered species in California, 16 years of experience working in environmental consulting. Contribution: Natural Environment Study, Jurisdictional Delineation Report.
- Jon Claxton, Principal Natural Resources Team Lead, B.S., Biological Sciences; California Polytechnic State University, San Luis Obispo, California; 20 years of experience conducting biological investigations and providing a broad range of environmental consulting services, Contribution: Natural Environment Study, Jurisdictional Delineation Report, Tree Survey.

5.9 Terry A. Hayes Associates, Inc.

- Sam Silverman, Senior Environmental Scientist. M.S., Environmental Health, University of California, Los Angeles; 22 years of experience in managing the preparation of Air Quality, Greenhouse Gas, and Energy Technical Reports with a focus on transportation projects. Contribution: Air Quality Report; Energy Analysis Report
- Peter Feldman, Senior Planner. B.A., Political Science, University of California, Irvine; 13 years of experience in the preparation of environmental documentation with a focus in community issues and environmental justice. Contribution: Community Impact Report.

5.10 WRECO

- Christine Boschen, Senior Environmental Scientist. M.S., Soil and Water Science, University of California, Riverside; 23 years of experience in the fields of stormwater management and regulatory compliance. Contribution: Water Quality Assessment Report.
- Wana Chiu, E.I.T. B.S., Civil Engineering, University of the Pacific, Stockton; 19 years of experience in the fields of hydrologic and hydraulic analysis and design. Contribution: Floodplain Evaluation Report.
- Analette Ochoa, Vice President, P.E., QSD/P, ToR. B.S., Civil Engineering, University of California, Davis. 29 years of experience in the fields of water quality, stormwater management, and hydraulics. Contribution: Floodplain Evaluation Report; Water Quality Assessment Report.

5.11 Far Western

- Melinda Pacheco Patrick, Principal Investigator. M.A. In Historical Archaeology, University of Leicester. Contribution: Archaeological Survey, Extended Phase I and Phase 2 Testing Report.

5.12 Monument

- Kim Bibolet, SR/WA, R/W-NAC, 15 years of experience, works closely with numerous local governments, public agencies, and private companies on transit, transportation, housing, and utility infrastructure projects. Kim is a licensed real estate agent and has been involved in all aspects of right-of-way work, including appraisal valuations, curative title, environmental assessments, acquisition, escrow coordination, encroachment mitigation and permitting, eminent domain support, and relocation advisory services. Contribution: Relocation Impact Memorandum.

5.13 Brunzell Historical LLC

- Kara Brunzell, Historian. M.A. in Public History, California State University, Sacramento. Contribution: Historic Resources Evaluation Report, Historic Property Survey Report, Finding of Effect.

5.14 CDM Smith

- William Hurrell, Vice President, PE. M.S., Civil Engineering, University of California, Berkeley; 46 years of experience in the fields of multimodal transportation planning and engineering. Contribution: Traffic and Transportation Analysis.
- Chiranjivi Bhamidipati, E.I.T. M.S., Civil Engineering, Civil Engineering, University of Virginia; 13 years of experience in the fields of transportation planning, traffic operations and technology, highway engineering. Contribution: Traffic and Transportation Analysis.
- Szu-han Chen, E.I.T., AICP. M.S., Transportation, Massachusetts Institute of Technology; 10 years of experience in the fields of traffic engineering, transportation planning, land use planning, public transportation, operations research, and transportation-related economics. Contribution: Traffic and Transportation Analysis.

Chapter 6 **Distribution List**

The State Clearinghouse distributed copies of this document to reviewing agencies. In addition, copies were sent to the agencies and stakeholders listed below.

- Aptos Chamber of Commerce
- Federal Rail Administration
- Steven S. Cliff, Executive Officer, California Air Resources Board
- Rainey Graeven, California Coastal Commission
- Dan Carl, California Coastal Commission
- Gustavo Velasquez, Director, California Department of Housing and Community Development
- Armando Quintero, Director, California Department of Parks and Recreation
- Rachel Machi Wagoner, Director, California Department of Resources Recycling and Recovery
- Karla Nemeth, Director, California Department of Water Resources, Environmental Services Office
- California Highway Patrol, Santa Cruz Division
- Jun Bando, Executive Director, California Native Plant Society
- Rachel Peterson, Executive Director, California Public Utilities Commission
- Wade Crowfoot, Secretary, California Natural Resources Agency
- Jennifer Lucchesi, Executive Officer, California State Lands Commission
- Toks Omishakin, Secretary, California State Transportation Agency
- Yvette Brooks, Capitola City Council
- Mayor Margaux Keiser, Capitola City Council
- Alexander Pedersen, Capitola City Council
- Vice Mayor Kristen Brown, Capitola City Council
- Joe Clarke, Capitola City Council
- Carrie Arnone, Chief Executive Officer, Capitola-Soquel Chamber of Commerce
- Matthew T Keeling, Executive Officer, Central Coast Regional Water Quality Control Board

- Katie Herlihy, Community Development Director, City of Capitola
Community Development
- Jessica Kahn, Director, City of Capitola Department of Public Works
- Mark Dettle, Director, City of Santa Cruz Department of Public Works
- Lee Butler, Planning Director, City of Santa Cruz Planning and Community
Development
- Christian, Di Renzo, Director of Public Works and Utilities, City of
Watsonville
- Coastal Watershed Council
- Community Traffic Safety Coalition of Santa Cruz County
- California Department of Conservation, Division of Land Resource
Protection
- Antonio Johnson, Director of Planning, Federal Highway Administration
- University of California, Santa Cruz, Office of Planning and Budget
- Sarah Newkirk, Executive Director, Land Trust of Santa Cruz County
- Dr. Daisy Morales, Superintendent, Live Oak School District
- Ernest Conant, Regional Director, Mid Pacific Regional Office Bureau of
Reclamation
- Debbie Bulger, Mission Pedestrian
- Cesar Lara, Executive Director, Monterey Bay Central Labor Council
- Richard Stedman, Air Pollution Control Officer, Monterey Bay Unified Air
Pollution Control District
- National Marine Fisheries Service Santa Rosa, California Coastal Office
- Frank Lands, Regional Director, National Park Service Pacific West
Region
- Raymond C. Hitchcock, Executive Secretary, Native American Heritage
Commission
- Pacific Gas and Electric Company
- Pajaro Valley Chamber of Commerce
- Michelle Rodriguez, Superintendent, Pajaro Valley Unified School District
- Casey Beyer, Chief Executive Officer, Santa Cruz Chamber of Commerce
- Mayor Fred Keeley Santa Cruz City Council
- Renee Golder, Santa Cruz City Council
- Sonja Brunner, Santa Cruz City Council
- Shebreh Kalantari-Johnson, Santa Cruz City Council

- Scott Newsome, Santa Cruz City Council
- Martine Watkins, Santa Cruz City Council
- Kris Munro, Superintendent, Santa Cruz City School District
- Manu Koenig, District 1, Santa Cruz County Board of Supervisors
- Zach Friend, District 2, Santa Cruz County Board of Supervisors
- Justin Cummings, District 3, Santa Cruz County Board of Supervisors
- Felipe Hernandez, District 4, Santa Cruz County Board of Supervisors
- Bruce McPherson, District 5, Santa Cruz County Board of Supervisors
- Emily Ham, Executive Director, Santa Cruz County Business Council
- Matt Machado, Director, Santa Cruz County Department of Public Works
- Jess Brown, Executive Director, Santa Cruz County Farm Bureau
- Dr. Faris Sabbah, Superintendent, Santa Cruz County Office of Education
- Matt Johnston, Principal Planner, Santa Cruz County Planning Department
- Lisa Lurie, Executive Director, Santa Cruz County Resource Conservation District
- Marysol Torres, Sheriff-Coroner, Santa Cruz County Sheriff
- Michael Tree, Chief Executive Officer, Santa Cruz Metropolitan Transit District Administrative Offices
- Rick Longinotti, The Campaign for Sustainable Transportation
- Sierra Club, Santa Cruz County Group
- Ben Jealous, Executive Director, Sierra Club, Ventana Chapter
- Scott Turnbull, Superintendent, Soquel Union Elementary School District
- California Office of Planning and Research State Clearinghouse
- Eileen Sobeck, Executive Director, State Water Resources Control Board
- Maura F. Twomey, Executive Director, The Association of Monterey Bay Area Governments
- Lt. Col. Kevin P. Arnett, Commander, U.S. Army Corps of Engineers
- Janet Whitlock, Regional Environmental Officer, U.S. Department of the Interior Office of Environmental Policy and Compliance Sacramento Region
- U.S. Environmental Protection Agency, Region IX
- Mark Elvin U.S. Fish and Wildlife Service
- Carol Sachs, U.S. Environmental Protection Agency, Region IX

- Suzi Merriam, Director, Watsonville Community Development Department
- California Transportation Commission
- The Honorable Zoe Lofgren, U.S. Representative, 18th District
- The Honorable Dianne Feinstein, U.S. Senator, State of California
- The Honorable John Laird, Member of the Senate, 17th District
- The Honorable Robert Rivas, Member of the Assembly, 29th District
- The Honorable Kevin McCarthy, U.S. Representative, 20th District
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- Allan Timms, Scotts Valley City Council
- Derek Timm, Scotts Valley City Council
- Mayor Jack Dilles, Scotts Valley City Council
- Donna Lind, Scotts Valley City Council
- Vice Mayor Randy Johnson, Scotts Valley City Council